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ABSTRACT

These four self-contained home economics miniunits on nutrition and food preparation are part of a set of 21 designed to provide middle school/junior high boys and girls opportunities to explore several areas of study within a 6-, 9-, or 12-week period of instruction. Units are designed to be free of sex-role stereotyping and are identified as level I (suggested for grades 6-7) or level II (suggested for grades 8-9). The suggested time required for completion of a unit varies from 3 to 9 weeks, those incorporating laboratory experience requiring 6 to 9 weeks. Titles and levels of these four units are: Good Health Through Nutrition: How Do You Measure Up (level I); Nutrition: Buying and Selling (level II); Foods With Taste Appeal (level I); and Enjoying Outdoor Cookery (level II). Each unit is composed of: (1) an introductory page that includes a brief description of the focus of the unit, a statement of rationale and objectives, and suggested grade level and time for completion; (2) the body of the unit composed of conceptual content (statements which identify the concepts and generalizations relevant to the objectives) and the suggested learning approach, and (3) support material, which identifies by number and page the suggested materials to be used in pupil-teacher interaction (some materials are included; some are to be secured from the source identified at the end of the unit). A brief synopsis of all 21 miniunits plus description of the development and field testing of the units are included. (HD)

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MIDDLE SCHOOL - JUNIOR HIGH

CO-EDUCATIONAL

MINI UNITS IN HOME ECONOMICS

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FORWARD

Curriculum development is a continuous and unending activity. Responsible and concerned classroom teachers and other educators through their own initiative undertake activities directed toward the improvement of curriculum. In addition, from time to time changes occur in the societal context which provide special impetus for serious and considered attention to the questions of what ought young people to become and how can curriculum contribute to the development of valued capabilities.

In 1972, the Minnesota State Board of Education issued a policy statement indicating their commitment to the provision of equal educational opportunity for all. The Board recommended that sex role stereotyping and all practices which perpetuate sexual stereotyping in school programs be eliminated. The recommendation further indicated that appropriate action be undertaken to eliminate sex bias from curricular and instructional materials used in elementary and secondary schools. In 1974, a contractual agreement was initiated by the Division of Vocational-Technical Education of the Minnesota State Department of Education with the Department of Vocational-Technical Education and the Division of Home Economics Education of the University of Minnesota for the purpose of developing curricular materials in home economics which would provide equal educational opportunities for boys and girls at middle school/junior high school level.

Audrey Grote, Vocational Program Supervisor for Consumer Homemaking, served as the representative of the State Department of Education to the project. Dr. Roxana Ford, chairperson of the Division of Home Economics Education, University of Minnesota, was director of the project. Helen Henrie, instructor in home economics education, University of Minnesota, served as leader for the several developmental phases of the project. Twenty-four junior high school home economics teachers participated in the development, field trial and revision of the units. Additional junior high/middle school teachers participated in the field trial of the units.

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DEVELOPMENT OF CURRICULAR MATERIALS

Selection of Teacher Writers:

Middle school/junior high school home economics teachers throughout the state were surveyed in 1974 to determine their interest in and need for curricular materials in home economics which would be free of sex role stereotyping. A number of the respondents indicated that the home economics program in their school would be integrated during the 1975-76 school year. Furthermore, they expressed a need for curricular materials which would present tasks associated with home and family living as appropriate for females and males. Approximately 30 respondents indicated their interest in participating in the Home Economic curriculum development project at the middle school/junior high school level. From this group, twenty-four teachers were identified to participate in the development of materials and in the field trial of materials in co-educational classes.

Decision to Develop Mini Units:

Data gathered regarding the scheduling of classes in home economics at the middle school/junior high school level indicated that the semester length offering was most often used for required and elective courses in home economics. The second most frequently used scheduling was the year long course followed by trimester and quarter length offerings. This data appeared to reflect the practice of scheduling girls into home economics and boys into industrial education. With the introduction of co-educational classes it seemed reasonable to assume that new courses would be of shorter duration in order to accomodate larger numbers of students in the same facilities and time frame. Furthermore, shorter units of study seemed to be appropriately matched to the developmental interests of early adolescents. Therefore, it was decided to develop curricular materials which could be taught in relatively short periods of time; thus providing students with opportunities to explore several areas of study within a 6, 9, or 12 week period of instruction. The term mini unit was coined to describe the short self-contained curricular materials which would be designed to provide boys and girls learning opportunities in home economics.

Selection of Mini Units for Development:

Curriculum development involves the consideration of alternatives and the making of choices among those alternatives. As curriculum is planned the following questions arise:

- What changes in pupil behavior or capabilities ought to result from the experiences which comprise the curriculum?
- What knowledge, skills and attitudes are necessary for pupils to develop if the objectives of curriculum are to be accomplished?
- What approaches to learning will assist students in accomplishing the objectives of the curriculum?
- What means can be used to determine whether students have accomplished the objectives of curriculum?

Answers to these questions may be formulated in a variety of ways. For this project the teacher-writers from various locations in the state participated in a series of meetings at which time the following basis for curriculum development were examined: conceptions of the learner and the learning process, developmental characteristics of the early adolescent, current societal conditions and purposes of the field of home economics. As a result of this study the following point of

view regarding the purpose of instruction in home economics at the middle school/ junior high school level was developed.

It is assumed that individuals, both female and male, have the right to full self-development. Furthermore, the individual is viewed as possessing the potential for the development of a variety of capabilities. The individual is considered an active agent in directing her or his own development. Growth and development of capabilities, is believed to result when the individual interacts with the environment. As the individual interacts with the environment, he or she is capable of developing meaningful knowledge and of interrelating and organizing knowledge. The developing person is considered capable of complex behavior involving considering ideas simultaneously, ordering them and adapting them to meet new situations. This conception of the learner as self-directing, possessing the potential for continuous growth and development, and capable of exercising intelligence in coping with life circumstances appears to be consistent with a society which is dedicated to and dependent upon the development of free, rational, and responsible individuals.

Young people of middle school/junior high school age have reached or are approaching a stage of development which is characterized by search for individual identity, new levels of physical maturation, desire for group acceptance, and the development of intellectual abilities related to problem solving and value development. The emergence of these characteristics has implications for the development of curricular materials which will foster in students comprehension of physical and social environment in which they live. Furthermore, curricular materials which would be consistent with these capabilities would develop students' ability to make informed and reasoned decisions and to execute them effectively.

The desirability of assisting young people to develop these capabilities becomes more apparent in the context of societal conditions. Individuals in the currently complex and ever-changing society face life situations for which there are few, if any, satisfactory ready made solutions.

Among the areas of living in which individuals are required to seek solutions and assume personal decision making power are those which have as their focal points personal, home and family life. As individuals make personal decisions and interact with family members, other individuals, and groups, conditions are produced which affect the well-being of those involved. Furthermore, when individuals interact with objects and materials which are related to the home and perform tasks associated with home and family living, conditions are produced which affect the development of people. Simply stated, the decisions of individuals regarding what to do and what not to do in the realms of personal, home and family life result in conditions which may be beneficial to the development of human potential or may be detrimental to that development. With these ideas in mind it was judged that curricular materials in home economics at the middle school/ junior high school level would foster self-development and provide for equal educational opportunity if they provided opportunities for boys and girls to consider the roles they may assume as family members, consumers and wage-earners in home economics related occupations, and if they encouraged boys and girls to explore decision making tasks related to personal, home and family living.

The developmental characteristics of young people, current societal context and knowledge of the field of home economics, were used as guides in the identification of decision making tasks likely to be experienced by middle school/ junior high school students. Through a process of consultation which involved Audrey Grote, Helen Henrie and the teacher-writers, 25 mini units were selected for development.

The development and writing stage of the project was carried on from August 1974, through March 1975. During this time, materials underwent several revisions and copies were prepared for field trial. Twenty-two units were completely developed.

Arrangement for field trial of the mini units were begun in November 1974. A letter inviting participation in the field trial was sent to middle school/ junior high school home economics teachers. To the group of 131 teachers who responded indicating an interest in the field trial, 205 mini units were distributed. At the close of the field trial in June 1975, ninety-five units had been returned with completed field trial data. Each of the mini units had been used with at least one group of students. Several units were used in six to eight classes. The average number of field trials per unit was 3.80. A total of 3,566 students participated in the field trial. Seventy-eight percent were female and twenty-two percent were males. Evaluations of the mini unit were completed by the teachers and the students responded to an opionnaire. Responses from the teachers and students were considered in the revision of the mini units.

Revision of the mini units included the following activities. Evaluative statements from the field test teachers and students were summarized. A conference was held with each teacher-writer to examine the evaluations and identify further modifications which would enhance the units. The final revision of the units was carried out by the project leader and assistants.

Throughout the development of the mini units a conscious effort was made to eliminate sex role stereotyping. The decision-making tasks and the related body of knowledge which are focal points of the mini units are those engaged in by females and males. Furthermore, all tasks are presented as appropriate for both men and women. Females and males are depicted as successful and unsuccessful. Members of both sexes are depicted in a variety of roles. The major portion of the conceptual content related to the various decision tasks applies equally to females and males. For example, clean hands, clean clothing and hygienic practices reduce the likelihood of contamination of food. Also, a child's third year is one of physical growth and development. Coordination of large muscles develops and the child is capable of running, riding a tricycle, and carrying large, lightweight objects. Small muscle coordination also develops and the child feds herself/himself with greater skill and handles other objects with better coordination. When a difference in empirical knowledge occurs and is related to sex, statements which describe or apply to males and females are identified.

Format of the Mini Unit:

Each mini unit is composed of an introductory page, the body of the unit, and a section of support materials. The introductory page provides an overview of the unit, including a brief description of the focus of the unit, a statement of rationale, the objectives, suggested grade level, and an estimation of the time required for completion of instruction. The body of the mini unit is composed of three sections. The Conceptual Content contains statements which identify the concepts and generalizations which are relevant to the exploration and understanding of the areas of study and achievement of the objectives. The Pupil-Teacher Interaction describes the particular approach to learning which is being suggested. The role pupils and teacher in carrying out the activities are identified together with the support materials to be used. The Support Material

section identifies by number and page the suggested materials which can be used in the pupil-teacher interaction. In some instances, a copy of the material is provided and in other instances the material is to be secured from a source identified in the reference section which appears at the end of each mini unit. Evaluation procedures are not included in the mini units as time did not allow for the development of this aspect of the materials.

The mini units are identified as level I or level II. Level I units provide basic learnings in an area and assume no prior formal educational experience on the part of the students. These mini units are suggested for grades 6 - 7. Level II units extend learnings and introduce new learnings in various decision areas. These units are suggested for students in grades 8 - 9. The suggested time required for completion of a unit of study varies from 3 - 9 weeks. Units which incorporate considerable laboratory experience require 6 - 9 weeks.

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Career Exploration

Unit Title: What Do People Do All Day?

Suggested Time: 3 weeks.

Unit Focus: In an effort to allow young people to explore lifestyles, this unit emphasizes an investigation of those activities carried on within the home, at one's chosen occupation and during leisure time. The unit attempts to help young people understand the relationship between choices made and the resulting lifestyle. Students are alerted to the personal power they can exercise to develop a desirable and satisfying lifestyle. An exploration of home economics wage earning occupations and the occupation of consumer-homemaker are included.

Level: II

Educational Background: None required.

Unit Title: Looking at Food Service

Suggested Time: 6 weeks.

Unit Focus: The focus of this unit is the exploration of various food service occupations. Through study trips and simulated experiences, students have the opportunity to become acquainted with several occupations related to the preparation and service of food in quantity. Instruction is planned to familiarize students with those areas of study which are basic to several food service occupations. Included are sanitation, service of food, safety, job satisfactions and preparation for various jobs. Basic food preparation techniques, use of equipment and cost control are included in the unit but are not major points of emphasis.

Level: II

Educational Background: It is suggested that this unit be taught to boys and girls who have a basic understanding of food preparation and have some familiarity with food preparation from an experiential base.

Unit Title: Enjoying and Understanding Young Children

Suggested Time: 6 - 9 weeks.

Unit Focus: The care and guidance of young children is the theme of this unit. Direct experience with preschool children is suggested as a primary learning experience. The activities and procedures carried out with the children in the preschool are considered in terms of their effect on the development of the young child. Attention is directed to career opportunities related to child care.

Level: II

Educational Background: None required.

Career Exploration (cont.)

Unit Title: Jobs: Sewing and Selling

Suggested Time: 6 weeks.

Unit Focus: The clothing industry is used as a vehicle to introduce students to the economic system and the role of producers and consumers. An item made from textiles is selected by students and teacher to be produced in the classroom and sold. Students participate in making managerial decisions and perform tasks as production workers in a simulated factory. Job applications, interviews, and time work records are completed by students. Attention is given to satisfactions associated with various jobs. Students have some opportunity to develop sewing skills.

Level: II

Educational Background: It is assumed that students have some background in clothing construction and limited experience in the operation of the sewing maching. If students have had no experience, the suggested time should be extended 1 - 2 weeks.

Clothing and Textiles

Unit Title: Clothing Care and Repair

Suggested Time: 2 - 3 weeks.

Unit Focus: Clothing storage, laundry and simple repair. Attention to procedures and the effect of procedures on the appearance and life of wearing apparel.

Level: I

Educational Background: None required.

Unit Title: Personality, Lifestyle and Clothing

Suggested Time: 2 - 3 weeks.

Unit Focus: Clothing selection for the individual is the central theme of the unit. Attention is given to the functions of clothing and the influence of values in the process of selecting clothing. An introduction to wardrobe planning is incorporated. Opportunities are provided for students to examine and observe actual fabrics and garments. These experiences are used to develop understanding of the elements of color, texture and line as they relate to clothing design and selection.

Level: I

Educational Background: None required.

Clothing and Textiles (cont.)

Unit Title: Consumer Clothing

Suggested Time: 3 weeks.

Unit Focus: Alternative methods of acquiring clothing are explored in terms of resources required and problems or risks involved. Knowledge of the properties of textile fibers and information provided by textile product labels are presented as resources useful in acquiring clothing whether clothing is purchased ready-made or self-constructed. Indicators of quality in garment construction are identified, and students have the opportunity to examine and compare garments for quality of construction. Attention is given to factors which affect prices charged and the relationship of price and quality. Experiences are provided which encourage students to relate factual information to clothing acquisition problems and decision making.

Level: II

Educational Background: None required.

Consumer Behavior

Unit Title: Consumer Decision Making

Suggested Time: 3 - 4 weeks.

Unit Focus: Consumer decision making is approached as an activity directed toward the satisfaction of needs and one which is influenced by a variety of factors including the knowledge and values of the consumer. It is suggested that students select a consumer decision making project which can serve as a point of reference for the learnings incorporated in the unit. Class activities focus on understanding the relationship of various factors to consumer decision making. Merchandising practices including packaging, labeling, advertising and pricing are studied as well as other sources of information available to the consumer. Students have the opportunity to participate in the several phases of consumer decision making.

Level: II

Educational Background: None required.

Consumer Behavior (cont.)

Unit Title: Dealing With Dollars

Suggested Time: 2 - 3 weeks.

Unit Focus: The unit introduces students to the functions of money in meeting needs and wants of individuals. Experiences in the unit provide opportunities to develop understanding of such concepts as goals, values and resources as they relate to money management behavior. Sources of money income and practices which increase purchasing power or extend money income are among the concepts presented which enable the student to examine her/his own money management practices.

Level: II

Educational Background: None required.

Unit Title: Metric Mind

Suggested Time: 2 weeks.

Unit Focus: The unit provides a short and basic introduction to the metric system of measurement. Emphasis is on learning to think metrically. The major part of the unit includes understanding the basic units of measurement in the metric system and their interrelationship. Students have some opportunity to use the metric system in simple problems. Activities in sections are designed to acquaint the students with the use of the metric system in the role of consumer and homemaker.

Level: I or II

Educational Background: None required.

Nutrition and Food Preparation

Unit Title: Good Health Through Nutrition: How Do You Measure Up?

Suggested Time: 2 - 3 weeks.

Unit Focus: The basic food nutrients and their effect on the health and well-being of individuals is the central theme of the unit. Through experiences in the unit, students have the opportunity to become familiar with the Recommended Daily Dietary Allowances for the basic nutrients and food sources for those nutrients. The caloric value of foods and the relationship of calorie intake to calorie output is studied. As the nutrients are studied, students will either test food samples for nutrient content or see demonstrations of tests for nutrients. Opportunities are provided for students to taste foods which supply nutrients in significant amounts and to determine from reliable sources the nutrient and caloric value of foods.

Level: I

Educational Background: None required.

Nutrition and Food Preparation (cont.)

Unit Title: Nutrition: Buying and Selling

Suggested Time: 3 weeks.

Unit Focus: The selection of foods which will provide adequate nourishment is the focus of this unit. Factors which influence food choices are identified. The Recommended Daily Dietary Allowance is introduced as a guide to the selection of foods. Nutritional labeling, food fads and fallacies, food advertisements and food prices are examined to determine their usefulness in the selection of foods which provide essential nutrients. Experiences incorporated in the unit provide opportunity for students to observe, describe, differentiate, compare, and formulate generalizations.

Level: II

Educational Background: Learnings in the unit assume previous study of nutrition.

Unit Title: Foods With Taste Appeal

Suggested Time: 3 - 4 weeks.

Unit Focus: The unit provides an introduction to learnings which are basic to the preparation of foods that are nutritious and appealing to the appetite. Demonstrations, films and illustrated presentations are used to help students develop learnings related to nutrition, sanitation, personal hygiene, safety, standardized recipes, food preparation equipment and principles for the preparation of selected foods. Laboratory experiences are suggested which will provide direct experience with the various learnings.

Level: I

Educational Background: None required.

Unit Title: Enjoying Outdoor Cookery

Suggested Time: 6 weeks.

Unit Focus: Three types of outdoor food preparation settings provide an organizational structure for student activities in the classroom and outdoors. Principles of food storage, preparation and serving are included in the unit. Meat, vegetable and pasta cookery principles are presented with attention to adaptations to outdoor facilities. The preparation of quick breads, desserts and beverages from recipes adapted to outdoor preparation are included. The basic nutrients and their functions are incorporated in the unit as various types of food which provide those nutrients are studied. Laboratory lessons are interspersed throughout the unit. It is suggested that several preparation and serving experiences be performed in the outdoor settings.

Level: II

Educational Background: This unit is appropriate for students who have completed basic food preparation and nutrition courses.

Housing

Unit Title: A Space for Living

Suggested Time: 3 - 4 weeks.

Unit Focus: The aim of the unit is to develop students' awareness of the environments in which they live and to develop their ability to modify those environments in ways which will satisfy needs. Particular attention is directed to such aspects of home environment as color, line pattern, arrangement of furnishings, utilization of space and care of space and furniture. Experiences are incorporated in which students have the opportunity to simulate choice making and consider effects which result from choices made.

Level: II

Educational Background: None required.

Personal Development

Unit Title: Grooming and You

Suggested Time: 3 weeks.

Unit Focus: Personal appearance, grooming practices, and the choice of personal grooming practices are focal points of the unit. The care of physical features, including skin, hair, and nails, is studied. Experiences are provided which illustrate the development of grooming practices over time and the relationship of selected practices to cultural norms and physical health. The selection of personal care products is used as a means of introducing students to consumer decision making.

Level: I

Educational Background: None required.

Unit Title: Becoming a Person - A Lifelong Process

Suggested Time: 2 - 3 weeks.

Unit Focus: This unit is directed to helping students develop a realistic and favorable self-concept. Experiences in the unit encourage students to accept themselves and seek opportunities for growth and development of personal potential. Individuals are presented as trustworthy, capable and able to exercise self-determination in regard to personal development. Conforming and stereotyping as ways of behaving are examined in terms of the probable effects on personal development. Students have some opportunity to exercise independent thinking and express personal ideas through value clarification and communication exercises.

Level: I

Educational Background: None required.

Personal Development (cont.)

Unit Title: Making the Most of Your Resources

Suggested Time: 2 weeks.

Unit Focus: This unit introduces students to the management process. The meanings of the concepts, goals, resources and values are developed as well as the inter-relationships of these concepts in the several phases of the management process. Several activities in the unit provide opportunities for students to work through planning, controlling and evaluating phases of the process.

Level: I

Educational Background: None required.

Unit Title: Understanding Yourself and Human Sexuality

Suggested Time: 3 - 4 weeks.

Unit Focus: The unit introduces students to sexuality as a part of human development. Attention is given to the physiological components of sexual development and to the attitudes and feelings about sex which develop as individuals mature. The unit provides accurate information regarding the physiological development of sexuality in females and males. The various modes of sexual behavior and the probable consequences of these behaviors are examined. Experiences are incorporated which encourage the student to think through possible courses of action in regard to sexual behavior and the consequences of those actions.

Level: II

Educational Background: None required.

Unit Title: You and Your Family

Suggested Time: 3 - 6 weeks.

Unit Focus: The unit is designed to enhance the students' understanding and appreciation of the family as a unit of interdependent individuals whose interactions result in environments which affect the development and well-being of individuals. The unit attempts to develop students' awareness of the potential of families of varying structures for meeting the needs of family members. A problem solving strategy is introduced as a framework for the examination and consideration of problems which family members may experience as they interact with each other. Students have the opportunity to select a concern of interest to them and work through the problem solving strategy in regard to that concern. Communication exercises and values clarification activities are incorporated in the problem solving strategy.

Level: I

Educational Background: None required.

Personal Development (cont.)

Unit Title: Learning to Care for Children

Suggested Time: 2 - 3 weeks.

Unit Focus: The unit introduces the student to the concept of child care. Children from infancy to preschool age are presented as developing individuals. The responsibilities of the child care person (baby sitter) and the procedures used with children are considered in terms of their effects on the welfare and development of the child. Employer-employee relationships and responsibilities are considered. An overview of other careers related to the field of child care is included.

Level: I

Educational Background: None required.

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UNIT TITLE: *GOOD HEALTH THROUGH NUTRITION: HOW DO YOU MEASURE UP?*

UNIT FOCUS: The basic food nutrients and their effect on the health and well-being of individuals in the central theme of the unit. Through experiences in the unit, students have the opportunity to become familiar with the Recommended Daily Dietary Allowances for the basic nutrients and food sources for those nutrients. The caloric value of foods and the relationship of calorie intake to calorie output is studied. As the nutrients are studied, students will either test food samples for nutrient content or see demonstrations of tests for nutrients. Opportunities are provided for students to taste foods which supply nutrients in significant amounts and to determine from reliable sources the nutrient and caloric value of foods.

RATIONALE: The selection of foods which provide adequate nutrients to support life is a task performed by most people throughout their lives. The appearance, taste and other qualities of foods which can be directly sensed do not provide accurate information regarding the nutrient content of the food, function of the nutrient in the body or the quanity needed to maintain health. It is apparent that instruction in these areas is needed to prepare people to make informed food selections. Middle school/junior high school students are assuming responsibility for the choices of foods they eat. They are also entering a period of rapid growth and development requiring additional nutrient intake to support it. Young people are frequently concerned with the changes taking place in their size and appearance. They are also interested in enhancing their personal appearance. As a result of these combined concerns, eating practices which are purported to enhance personal appearance may be adopted by young people. These practices are frequently based on incomplete and/or inaccurate knowledge. Instruction which assists the young person in developing an accurate informational base on which to make decisions will serve a useful function currently and for the remainder of the individual's life.

INSTRUCTIONAL OBJECTIVES:

Comprehension of the relationship of an adquate supply of basic nutrients to the health and well-being of the individual
Comprehension of the functions of the basic nutrients
Knowledge of Recommended Daily Dietary Allowances for basic nutrients
Knowledge of food sources for the basic nutrients
Comprehension of the concept of energy balance
Willingness to respond to the Recommended Daily Dietary Allowances as a guide in selecting foods
Ability to combine foods to meet the Recommended Daily Dietary Allowances for basic nutrients
Ability to interpret nutrition labeling
Willingness to use nutrition labeling as a guide in making food choices
Ability to select foods to control weight

EDUCATIONAL BACKGROUND: None Required. Level I

SUGGESTED TIME: 2-3 weeks

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	Pre-Teaching: Assemble a supply of magazines and newspapers which picture people and foods.	S.M.1
	Arrange display space in the form of bulletin board, or a large sheet of paper.	
	Provide or have students make a folder in which to keep class materials and notes. Folder may be decorated with nutrition terms and drawings or pictures.	
	Review Discoveries in Nutrition: People and food. Prepare materials for Time Line.	
Good health is generally accepted as freedom from disease.	Transition: As students enter the classroom give each a magazine. Direct them to clip pictures of people that appear to be in good health and those who do not appear healthy.	
Health is characterized by the presence of the following qualities: average weight for height well developed muscles alertness adquate energy for daily living clear eyes Firm, elastic skin of natural color	Allow time for students to select and clip pictures. Continue:	
	When you have found several pictures which represent good health, put them on the bulletin board.	
	Keep the pictures of people who do not appear healthy.	
	Direct students attention to the pictures which are displayed. Ask:	
	What do you see that indicates these people are healthy?	
	What qualities do healthy people have?	
Nutrition is an area of study that has developed to learn about food and its effects on the body.	What characteristics do healthy people have in common?	
	Record responses on visual around the pictures of healthy people.	
Nutrition is a relatively new science.	How do healthy people differ from people who are not healthy?	
	Transition: For many years people all over the world have sought ways to improve and maintain their health.	
	Food and the relationship of food to health has been of interest to people for many years.	
New knowledge about the effects of food and health of people is being discovered.	Assemble visual Nutrition Discoveries: Food & People as various discoveries are identified and explained.	
	Encourage students to add magazine and newspaper clippings which are related to nutrition to the display.	
	Students may report their nutrition news finds daily or several times a week throughout the unit.	
	Pre-Teaching: Order and preview one of the following films or filmstrips. The Real Singing, Talking Action Movie About Nutrition or How Food Becomes You.	S.M.14

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	Develop questions for discussion which focus attention on general good health and adequate nutrition. Order copies of the student leaflet "How Your Body Uses Food."	S.M.14
Foods contain chemical compounds that the body is able to use to maintain general good health.	Prepare copies of transparency Human Body Uses Food.	S.M.2
	Assemble foods, foodmodels or pictures of foods which represent a variety of nutrient sources.	S.M.14
The chemical compounds which the body uses to maintain health and life are called nutrients.	Transition: Direct students attention to the food display. Ask:	
	Which of these foods have you eaten?	
	Which foods have you not eaten?	
	Which food is your favorite?	
	Place the foods identified as favorites in a group apart from the others and in view of the class.	
	Continue: These foods appear different and they each have a distinctive taste.	
	All are called food because they contain chemical compounds the body uses to maintain life.	
When a food is eaten, the body goes to work to break the food down into nutrients.	The film which we will view will explain how these and other foods affect us.	
The breaking down process is called digestion and it goes on in the mouth, stomach and intestines.	View film. Carry out discussion.	
The nutrients are absorbed by the blood cells in the small intestine and carried through the body.	Show transparencies of the Digestive System on the overhead projector.	
	Colored bits of cellophane can be used to illustrate food passing through the digestive tract and being broken down into the several nutrients.	
Six classes of nutrients are needed by the body to maintain good health.	Choose several of the foods selected by the students as best or favorite foods.	
Theses nutrients are: carbohydrates, protein, fats, vitamins, mineral and water.	Identify the nutrients found in each.	
	Write the names of the nutrients on chalkboard or other visual.	
Each nutrient has a particular function which helps the body to maintain health.	Explain the general effect of an adequate supply of the nutrients and an inadequate supply of the nutrients.	
Lack of any of the essential nutrients will impair the body's ability to function.	Pre-Teaching: Review test for carbohydrates. Prepare materials and student observation forms. Prepare a symbol or cartoon type character to represent each of the essential nutrients.	S.M.3
Lack of a nutrient or nutrients over a period of time can result in severe illness and death.	Prepare copies of the form Best and Favorite Foods.	S.M.4
An over supply of nutrients appears to impair the body's ability to function.	Order copies of Food and Care of Dental Health or	S.M.5

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	Diet and Dental Health.	
	Secure several copies of books which contain nutrient analysis of common foods.	S.M.14
The nutrient called Carbohydrate is used by the body to supply energy for work and play as well as body heat.	Transition: Give each student a copy of Best and Favorite Foods. Familiarize students with directions and allow time for students to list foods.	
Involuntary - digestion, heartbeat, mental activity, and maintaining temperature. Voluntary - running, writing, playing and so forth.	Display chart containing symbol for carbohydrate and the term carbohydrate. Introduce the nutrient and explain the function of the nutrient. Ask: What are some of the activities for which energy is needed?	
Foods which supply the nutrient carbohydrate in large amounts are: fruits vegetables grain and grain products sugar honey molasses syrup	List responses on chalkboard. Which of these activities does the body do automatically? Which of these activities can the person control? Some of the study done by nutrition workers (scientists) has been to test foods to determine which nutrients they contain.	
Carbohydrates in food is used by the body in these ways: immediately as a source of energy to do work it is stored in the liver when more is taken into the body than is needed for energy	Perform the tests for sugar and starch on samples of food which students have listed as favorite or best foods. include foods which will give a positive reaction because they contain the nutrient and others which do not contain the nutrient.	
Carbohydrates when taken into the body in amounts greater than is needed is stored as fat. An accumulation of fat beyond that which is normal is associated with some illnesses.	Direct students in recording observations of the tests. When all testing and recording is completed, ask: Which foods appear to be sources of carbohydrates? Record responses on chalkboard or Nutrient Symbol Chart.	
Carbohydrates appear to have an effect on the quality of teeth.	Introduce students to charts that give nutrient information. Familiarize students with the units of measure used and have them identify foods that supply carbohydrate in large quatity. With the information available students can check their food lists to determine whether favorite and best foods are sources of carbohydrates. Students can find pictures of food rich in carbohydrates and attach them to display chart. OR Give each student a picture of a food and have them use resources (books and charts) to determine if food contains carbohydrates and how many grams.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	Display foods rich in carbohydrates on the chart.	
	Transition: Explain the general effect of oversupply of carbohydrates on health.	
If carbohydrate rich foods replace other foods in the diet which provide nutrients needed for tooth formation, then the quality of the tooth developed may be inferior.	**Pre-Teaching:** Contact local dentist for model of tooth and publications related to effect of carbohydrate on tooth quality.	
	Explain effects of carbohydrates on tooth development and dental caries.	
The oral (mouth) environment affects the extent to which dental caries (cavities) will develop.	If pamphlets are available they may be read by students.	
An environment which contains micro-organisms and carbohydrates will result in the production of an acid which attacks tooth enamel and produces dental caries.		
Carbohydrate rich foods which cling to the enamel or become lodged between teeth encourage the actions of the micro-organisms.		
Carbohydrate rich foods have a less harmful effect on tooth enamel when followed by liquids or other foods which act to scrub the carbohydrates from the tooth surface.		
The nutrient fat supplies the body with energy.	**Pre-Teaching:** Ask each student to list several foods which they frequently eat as between meal snacks. Assemble samples for testing.	S.M.3
Foods containing the nutrient fat give a feeling of fullness or satiety.	Prepare materials needed to test foods for fat. Use samples of favorite snack foods supplemented with others commonly eaten.	
The nutrient fat when stored in the body also serves as a reserve store of fuel. Moderate deposits of fat serve to support organs and prevent injury.	If possible obtain an organ from an animal with the fat still around it to show students how fat supports and holds organs in place.	
	Use a piece of chicken to show how fat is stored in a layer under the skin.	
Animal products such as: butter, cheese, cream and eggs are high in fat.	Optional. Order "Coronary Heart Disease; Risk Factors and the Diet Debate." Filmstrip Eat to Your Heart's Content.	
Some plants store fats in fruits, seeds, and seed grains. Foods high in fats are: nuts, wheat germ, and avocados.	Prepare visual for the nutrient fat.	
When more of the nutrient fat	Transition: Introduce symbol for the nutrient fat.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
is eaten than needed by the body for heat and energy, the excess is stored as body fat.	Explain and illustrate functions of fat.	
	Divide students into small groups. Familarize students with the tests for the nutrient fat.	
Excess carbohydrate is also stored as fat.	Assist students in performing tests and recording observations.	
Excessive fat deposits cause undesirable weight gains and place undue strain on heart and other vital organs.	Identify foods which are sources of fat.	
	Using nutrient analysis charts in textbooks, identify foods containing 10-15 grams of fat per serving.	
	Explain the effects of consumption of fat in excess. If textbooks are available students may read section and summarize information or answer specific study questions.	
	View and discuss **Eat to Your Hearts Content.** (optional)	S.M.14
The nutrient **Protein** is present in all living tissue. Proteins are essential to life because they are part of the nucleus and protoplasm of every cell.	**Pre-Teaching:** Order and preview film **How A Hamburger Turns Into You.**	S.M.14
	Collect 22 Lego or similar building blocks to represent the amino acids in a molecule of protein.	
Protein is necessary to build and repair body tissues. This is its most important function.	Identify 10 blocks by color or other markings to represent the essential amino acids.	
	Identify 12 blocks as representing the non-essential amino acids.	
Protein is needed to promote growth of the following body tissue: fingernails hair skin teeth bones muscles	Prepare symbol for protein.	
	Transition: View film and discuss questions. OR Introduce symbol for protein.	
	Explain functions of protein.	
Protein is needed to promote repair of body tissues: healing cuts, burns, broken bones and replacing blood lost due to injury.	Ask: Under what conditions might someone require additional protein for growth and repair?	
	Perform tests for protein. Students may act as assistants. Record findings on overhead transparency or chalkboard chart.	
Extra protein is needed during pregnancy and after illness, surgery or severe burns.	Identify food sources of protein.	
	Illustrate and explain the relationship of amino acids to a molecule of protein.	
Plant sources of protein include: nuts soybeans peas beans lentils	Construct a molecule of protein which would represent the amino acids found in a food which would be classified as a source of complete protein.	
	Construct a molecule of protein which would represent the amino acids present in food which would be	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
Animal sources of protein include: meat fish eggs poultry	classified as a source of incomplete protein.	
	View chart of food which provides protein and compare amounts in similar size servings.	
	Compare quantity of fat and carbohydrate provided in similar size servings of protein foods.	
All protein in the body is formed from 22 amino acids or chemicals.	Identify protein rich foods from the Best and Favorite Foods list.	
The amino acids are building blocks of the nutrient protein.	Complete classroom chart.	
The body is able to manufacture 12 of these amino acids from other chemical substances.		
Ten of the amino acids the body cannot manufacture. They must be supplied by foods eated. These 10 amino acids are called essential because without a food supply the body could not grow or repair tissue.		
A protein food with all ten is called a **complete protein.**		
Animal sources such as fish, eggs and cheese are complete proteins.		
Plant sources of protein include nuts, soybeans, peas, beans and lentils and are not complete; they are called **incomplete.**		
	Pre-Teaching: Order and preview film **Food, Energy and You.**	S.M.14
	Prepare copies of Activities and Use of Calories.	S.M.7
Energy is released whenever food is burned by the body.	Find a picture of a calorimeter.	
The energy value of food is measured in heat units called calories.	Transition: If the film is to be used have the students answer the following true-false questions as an introduction to the film.	
One calorie is equal to the heat required to raise the temperature of one gram of water one degree Celsius, or 2.2 pounds of water one degree Fahrenheit.	People who are overweight have inherited that characteristic. (false)	
	Eating only 2 meals a day will result in weight loss. (false)	
The calorimeter is an instrument which is used to measure	To gain weight and avoid drinking liquids. (false)	
	To reduce avoid foods such as potatoes, milk and peanut butter. (false)	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
the amount of heat energy produced when a food is burned. The calorimeter registers the total amount of heat produced. In the body the food will provide an equivalent amount of energy. Some of the energy appears as heat keeping the body warm. The remainder of the food energy is used in muscle activities and other life processes or stored as fat. The calorie is also the unit of measure for the energy used by the body. To measure the number of calories used by the body, measurements are made of the amount of carbon dioxide lost from the body during a given period of time. This gas is the end product of combustion and will be proportion to the amount of oxygen used by the body during that period of time. In turn the amount of oxygen used is in proportion to the amount of combustion that occured or the energy used. Basal metabolic rate (BMR) is the minimum amount of energy in calories per hour required to maintain life when the body is at rest. To compute the individual's BMR the following procedure can be used: the BMR can be figured as 1 calorie every hour for every 2.2 pounds (1 kilogram) of body weight In addition to the energy used by the body to maintain life itself, the body requires additional energy to carry out	All snacks should be avoided if a person wants to reduce. (false) View film. Discuss the following questions: Where do we get our energy? How is the energy in food measured? How is the energy the body uses measured? What happens in the body when there is an oversupply or undersupply of energy? Refer to true and false questions and discuss answers and reasons for answers with students. If the film is not used the following experiences are suggested: Ask: How long is this room? How could the length of the room be determined? What tools would be used? How is the length of something described? Record responses on chalkboard under the appropriate headings: Measuring Tool — Unit of Measure Yard or meter stick — Yard or meter Continue: If a recipe for cookies called for 2 cups of flour, how would the flour be measured? How is the liquid in a carton of milk measured? How would you measure the amount of energy supplied by an ice cream cone? Show a picture of a calorimeter and describe the general procedure for measuring food energy. As the explanation is given write "CALORIE=A MEASURE OF ENERGY IN FOODS." Show an illustration of a test for basal metabolic rate and explain general method for determining BMR. Write: "CALORIE=A MEASURE OF ENERGY USED	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
activites. Different activities require different amounts of energy. The total number of calories required by an individual is equal to the number needed to maintain the body while at rest (BMR) plus that required to carry out other activities.	BY THE BODY." Explain and illustrate the prodecure for determining the BMR: 2.2 ⟌ Individual's weight X 24 = BMR 45.4 2.2 ⟌ 100.0. X 24 = 1008.8 (hrs) (BMR) Each student may determine their own BMR. Record BMR calculations on chalkboard. Ask: What do you notice about the BMR for different people in this class? Why are the BMR's different? The BMR is based on body size and weight. The larger body required more energy to maintain its size than a smaller body. Continue: Each activity that an individual does requires some energy in addition to that needed by the body when at rest. Direct students attention to the Activities and Use of Calories Chart. Explain the meaning of the headings. Ask: Which activities require that most energy to perform? Which activities require the least? If someone spent an hour bicycling would he or she use more or less energy (calories) than someone who spend an hour walking? If someone had eaten foods containing 100 calories and wanted to use that energy, how long would they need to ride a bicycle in order to use the calories? Ask other similar questions to familiarize students with the general idea that different activities result in the use of different amounts of energy. Explain the general formula used to determine calories required to maintain weight. This formula includes the BMR as well as an average of number of calories needed for an activity level. A general formula for figuring calorie requirements is: multiply your weight by the number of calories per pound for your age;	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	Girls - 13-15...24 calories per lb. 16-19...20 calories per lb. Boys- 13-15...29 calories per lb. 16-19...26 calories per lb.	
	Students may determine number of calories they require to maintain weight according to the formula.	
Energy is supplies to the body by nutrients, carbohydrate, fat and protein.	**Pre-Teaching:** Secure a balance scale and weights. Label one side of the scale Energy Intake Food and Calories. Label the other side Energy Output Activities and Calories.	
Carbohydrates, fats and proteins are found in foods in varying amounts.	Balance the scale with 2000 calories on each side.	
Foods containing large amounts of fat supply more energy (for a similar weight) than foods that contain large amounts of carbohydrate or protein.	Assemble samples of common foods that represent a 100 calorie size portion.	
	Order **Why Not Snack?** (optional)	S.M.14
If more calories are ingested than expended, one will store the extra energy in the form of body fat. A weight gain will result.	Transition: Display food samples and direct students' attention to the samples.	
	During the past several days we have studied the nutrients carbohydrate, fat and protein. We have also talked about the calorie.	
If more energy is used than supplies by foods eaten, the body will use stored energy. This will result in a loss of weight.	The foods that are in the display have something to do with those ideas.	
	The foods also are similar because they represent a certain idea.	
	What do you think that idea might be?	
	Allow students to formulate guesses. If they are unable to discover the reason for the grouping after a reasonable length of time, have them use nutrient and calorie analysis charts as source of information.	
	When the basis for grouping has been discovered, clarify the relationship of fat, protein and carbohydrate content of foods to calorie value.	
	Direct students to determining the calorie value of their favorite and best foods.	
	Transition: Display balance scale. Explain and show how the intake and output of calories is balanced.	
	What happens to produce a weight gain?	
	To the intake side of the scale add 100 calories in the form of a weight. Identify the food source and amount.	
	This side will go down because the individual is storing energy (calories) in form of fat.	
	To the output side add 100 calories in the form of a	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	weight. Identify the activity using the 100 calories and the length of time. (no loss or gain - scale balanced)	
	Demonstrate weight loss in the same manner.	
	Show filmstrip **Why Not Snack?** (optional)	
	Discuss pro's and con's in terms of weight control.	
All people need the same nutrients. However, not all people need the same amount of nutrients.	**Pre-Teaching:** Prepare copies of RDA for Males and Females. Prepare copies of Grams of Protein.	S.M.8
	Direct attention to RDA chart. Explain basis for development RDA.	
Nutrition scientists have studied and carried out experiments to find out how much of each nutrient is needed by people of different ages, heights and weights.	Show gram and milligram weights.	
	Identify the grams of protein found in various meat products. Compare to recommended daily allowance for protein.	
The Recommended Daily Dietary Allowances has been developed as a result of the study which has been done. The RDA serves as a general guide to the amounts of nutrients needed by individuals to maintain health.		
The RDA allows a little more than an average person needs to provide for individual differences.		
Minerals are another class of nutrients needed for normal functioning and growth and repair of the body.	**Pre-Teaching:** Collect supplies needed for experiment to determine mineral content of foods.	S.M.3
	Prepare symbol for minerals. Prepare tasting samples of foods rich in the various minerals.	
Calcium and **phosphorus** are two minerals that have important functions in the development of teeth, bone and muscle tissue.	Transition: Serve food samples rich in minerals. Save a small portion for nutrient identification experiments.	
	Demonstrate mineral test. Test foods students have eaten and others.	
Calcium is also necessary for the clotting of blood.	Record results.	
The primary sources of phosphorus and calcium are milk and milk products, dark green leafy vegetables, lima and baked beans.	Introduce symbols for calcium and phosphorus. Explain functions.	
	Using standard nutrient chart have students identify foods rich in calcium and phosphorus.	
The RDA of calcium is between 800-1200 mg per day.	Students may determine whether foods they ate contained calcium and phosphorus.	
The consequences of a diet		

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
Insufficient in calcium and phosphorus during the growth period may be stunted growth, or poor quality bones.	Show transparency of RDA for teens for calcium. What is the RDA of calcium? Put foods together that would give the RDA of calcium for someone your age. How many glasses of milk would be needed if that was the only source of calcium? Why do children and teens need calcium? What might be the effect of insufficient intake of calcium or phosphorus?	
Iron is another nutrient necessary for good health. Most of the iron in the body is in the blood in the red protein called hemoglobin. Hemoglobin carries the oxygen to all the body cells. Iron deficiency anemia is the most common nutrient deficiency in the U.S. today. Anemia is a deficiency of hemoglobin or red corpuscles or both. Symptoms of iron deficiency anemia are: lack of ability of blood to carry oxygen which results in paleness weakness shortness of breath lack of appetite general slowing up of vital functions Iron deficiency anemia may be precipitated in young girls whose diets are on the border line of adequacy for the iron when the onset of menstruation results in loss of iron from body. Anemia can be caused by the losses of large amounts of blood. Foods high in iron content are:	**Pre-Teaching:** Collect several small nails. Show these to students and ask them to guess what the nails have to do with nutrition and minerals. Introduce symbol for nutrient iron. Explain the gerneral function of iron and effects of a lack of iron. Students may determine whether foods tasted were rich in iron. Check best and favorite food list to determine if iron is present. Find pictures of foods high in iron. Display.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
meat organ meats dried fruits soybeans egg yolks molasses leafy vegetables		
Iodine is a mineral necessary in the formation of thyroxim formed by the thyroid gland which determines the rate of metabolism.	Transition: Other minerals which are necessary to good health are iodine, magnesium and zinc. Explain the function of iodine and show iodized salt labels.	
Simple goiter is an enlargement of the thyroid gland, which is caused by a deficiency of iodine.		
Iodine is added to table salt to insure that people get their requirement of the mineral.		
If iodized table salt is used regularly the requirement for iodine is met.		
Generally, if the diet is adequate in calcium, iron and the vitamins, it is probably adequate in minor minerals also.		
Vitamins are nutrients which are necessary in small amounts in the diet of man and animals for normal growth, maintenance of health and reproduction.	**Pre-Teaching:** Order and preview **Vitamins From Food** or **Vitamins, Nutrition and Health.** Transition: View the film. Direct students in summarization of information.	S.M.14
Vitamins help other nutrients to carry out their functions.	Sample foods which are high in Vitamin A.	
Vitamin A is a fat soluble vitamin necessary for adatation of the eyes to the dark, normal growth and repair of tissues.	Describe the function of Vitamin A. Check the best and favorite foods to determine whether Vitamin A is present.	
Vitamine A is included in our diets by: milk egg yolks butter		
Yellow and dark green leafy vegetables contain pro-vitamin A which is converted into Vitamin A in the body. Carrots, sweet potatoes, apricots, spinach, broccoli, and peas are good		

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
sources of Vitamin A.		
The RDA of Vitamin A is 4000 International Units for women and 5000 International Units for men. 4000-5000 IU = 100% of RDA.		
Generally the B vitamins are necessary for growth, reproduction, general health, appetite, nervous stability and red blood cell formation.	**Pre-Teaching:** Make Granola in quantity large enough to allow each student to eat 1/4 - 1/3 of a cup.	
	Prepare copies of the Nutrient Analysis Chart for the recipe.	S.M.s
Thiamin, Vitamin B, is necessary to promote appetite and better functioning of the digestive tract.	Transition: Allow students to sample the Granola.	
	Show Nutrient Analysis Chart for the recipe.	
Excellent sources of Vitamin B are: enriched and whole grains green peppers pork liver oatmeal	Explain the function of B vitamins.	
	From Food Nutrient Charts identify other foods rich in B vitamins.	
An early sign of thiamin deficiency is the lowering of stamina. Subjects become irritable, depressed and lack to concentrate.	Check Best and Favorite Food list for sources of B vitamins.	
Riboflavin, Vitamin B2, deficiency is characterized by sore mouth and nose, falling hair, scaly skin, eye symptoms, digestive disturbances and nervous lesions.		
The function of riboflavin includes maintenance of mucous membranes. It is needed by the body to utilize carbohydrates, fats, and proteins.		
Good sources of riboflavin include: liver milk cheese eggs leafy vegetables whole grain and enriched bread lean meats		
Tissues that show damage as a result of niacin deficiency are chiefly the skin, the gastroin-		

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
testinal tract and nervous system.		
Foods high in niacin include: meat fish soybeans peanut butter enriched breads		
Vitamin C functions to protect from infection.	**Pre-Teaching:** Prepare a fruit and vegetable plate which includes fruits and vegetables high and low in Vitamin C.	S.M.3
Vitamin C is found in citrus fruits as well as other fruits and vegetables.	Transition: Have students guess which foods are high in Vitamin C.	
	Demonstrate test for Vitamin C.	
Vitamin C is not stored in the body. A food source of Vitamin C is needed daily.	Explain function.	
	List foods high in Vitamin C on the visual for vitamins.	
Vitamin D is necessary for the body to use calcium and phosphorus.	**Pre-Teaching:** Prepare transparency of Vitamin D sources.	S.M.10
	Assemble nutrition labels which specify fortified.	
In nature our main source of Vitamin D is sunshine.	Transition:Show transparency of sources of Vitamin D.	
	Explain functions and sources of Vitamin D.	
There several things that prevent us from getting Vitamin D from the sun. They include: clouds smog fog smoke dust shade from buildings and trees indoor work and play windows clothing	Explain the purpose of fortification.	
	Divide students into groups of 2-4 to perform the following tasks:	
	From the Nutrient Comparison Cards or Food Models, identify foods which provide the following percentages of the RDA: 20% or more of the RDA for Vitamin A 50% or more of the RDA for Vitamin C 20% of the RDA for Riboflavin 20% or more of the RDA for Thiamine	
To insure that an adequate amount of Vitamin D is available, certain foods such as milk have had the nutrient Vitamin D added to it.	Identify 6-8 foods which supply 20% or more of 2-4 vitamins.	
	Prepare and serve One Minute Breakfast. Have students develop a Comparison Card for One Minute Breakfast.	S.M.11
Fortification is a process through which nutrients are added which were not originally present in the food or that were present in smaller amounts.	Transition: Ask:	
	What are the five nutrients we have studied?	
	The sixth nutrient is an essential to life as any of those we have studied.	
There are other vitamins which serve to regulate and control body processes.	Do you know what the sixth nutrient is?	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
If the individual meets the requirements for Vitamins A, B, C, and D, it is likely the requirements for other vitamins will be met.	Without the sixth nutrient the body can maintain life only 2-3 days.	
	Every foods contains some of this nutrient.	
A combination of foods must be eaten if all the vitamins needed by the body are to be obtained. No one or two foods will provide adequate supply.	Continue to give clues regarding the nutrient until students identify it.	
	Explain the function of the nutrient.	
Water is a nutrient essential o to life. It is second only to oxygen in vital importance.		
The human can function without water for two or three days.		
Water acts as a solvent and carrier of many other nutrients and the waste products which are produced in the body.		
For good health a balance between water loss and water intake is needed.		
Water is lost by evaporation from the skin, unrinary loss, and respiratory loss.		
Water intake occurs through drinking liquids and eating foods periodically. All foods contain some water. Foods high in water content are lettuce, asparagus, and milk.		
Nutrition labels appear on many processed and packaged foods. The label contains the following information: number of calories in a serving of the food. grams of protein grams of carbohydrate grams of fat percentage of the RDA for protein percentage of the RDA for the vitamins A, B, B2, Niacin, C and D percentage of RDA for the minerals calcium and iron The label also gives the number and size of serving.	**Pre-Teaching:** Assemble nutrition labels and supplies for scavenger hunt.	S.M.12
	Prepare transparency of Nutrient Label.	
	Transition: Direct students' attention to Label. Ask students to explain the meaning of various parts of the label.	
	Divide students into teams and conduct scavenger hunt.	
	Pre-Teaching: Review Your Food Choices.	S.M.13
	Prepare materials for Your Food Choices.	
	Carry out Your Food Choices experience.	
	Assist students in using resource materials. Check scoring and provide feedback to students.	

S. M. 1 DISCOVERIES IN NUTRITION: PEOPLE AND FOOD

Purpose - This activity and display are designed to raise students level of awareness of nutrition and nutrition information.

The dates and nutrition discoveries which are included in the display have been choosen to illustrate the relative newness of the science of nutrition and the continuing discovery of new knowledge by the worker in the field of nutriton.

Materials - Wall, chalkboard or other space for display of visuals

- Colored yarn, paper, or paper chain to symbolize time
- Pieces of paper on which dates are written
- Irregular colored shapes of paper on which have been written titles of nutrition discoveries such as:

  400 B.C. Hippocrates - Food is the universal nutrient.

  1497 Pine needle soup cures scurvy.

  1747 James Lind works with Vitamin C - Cures sailors of scurvy.

  1913 Dr. McCallum - Substance A is necessary for life.

  1925 Vitamin D is isolated.

  1936 Vitamin E is isolated.

  1948 Vitamin K is isolated.

- Irregular colored shapes of paper on which have been written names of events familar to students such as:

  Columbus Lands

  1612 First American Colony

  1776 Declaration of Independence

  1858 Minnesota Statehood

  Town Founded

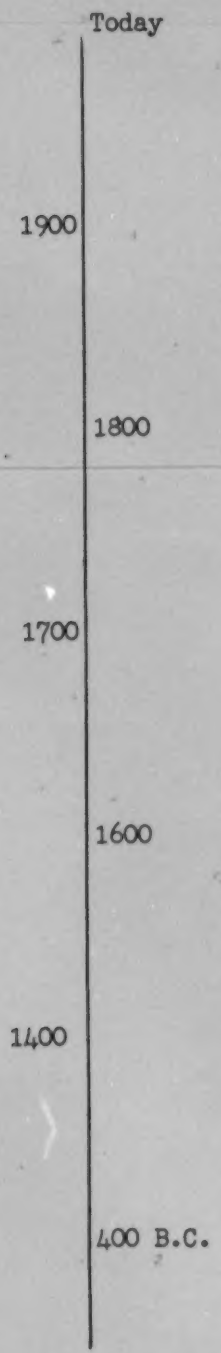
  School Built

  Year of Grandparents' Birth

  Year of Parents' Birth

S. M. 1 DISCOVERIES IN NUTRITION: PEOPLE AND FOOD (cont.)

Illustration:



S. M. 1 DISCOVERIES IN NUTRITION

Food has been a main concern of man since the beginning of time. There are many references to food in the Bible. There were many vague ideas about food revolving around taboos, magical powers and the medical values of food.

In 400 B.C. Hippocrates, Father of Medicine, considered food one universal nutrient.

In the 1400's, sailors on long sea voyages suffered a disease known as scurvy. They became weak, developed sunken eyes, bleeding gums and skin sores. Teeth became loose, bones broke easily and small blood vessels under the skin burst. Most scurvy victims eventually died. No one knew what caused the disease, some blamed the cold, damp air. Others said it was caused by depression, because if a sailor was lucky enough to make it home, the disease usually disappeared.

In 1535, after a voyage from France, the explorer Jacques Cartier spent the winter on the shores of Newfoundland. Some of his men developed scurvy. He heard of a native Indian witch doctor who could cure scurvy with pine needle soup. He made some of the soup for the sick sailors. Within six days they had recovered.

In 1747, James Lind, a Scottish medical doctor on a ship, conducted the first nutrition experiment. The men on his ship had contracted scurvy. He selected twelve. To their regular diet he added various foods including vinegar, cider, diluted sulfuric acid, alcohol with cinnamon and ginger, sea water, and to two of them he gave two oranges and a lemon each day. The ones that received the oranges and lemons recovered in a few days.

In the early 17th century, an Italian doctor became curious about what happened to food after he ate it. He weighed himself before and after he ate. He could not figure out why he did not gain the same amount of weight as the weight of the food he ate. He explained this weight loss by saying that it was lost in perspiration.

In the late 1800's, several experiments were done with animals. The animal was fed a diet of pure protein, carbohydrates and fat. The animals always died. Scientists then knew there was another substance essential to life.

In 1913, Dr. McCallum conducted an experiemtn with laboratory rats. The rats were fed the same diet except that one group of rats was fed lard and the other butter fat. The group that was fed on lard was sickly, did not grow and developed a severe eye condition. The ones fed on butter grew large, had beautiful fur and healthy eyes. Dr. McCallum called this substance vital to life . . ."A".

In the late 1800's, Takaki, a Japanese doctor, discovered that there was something lacking in the traditional Japanese diet (mainly white polished rice) which caused beriberi. This was a dreaded disease which seemed to hit only the Oriental countries. Feet and legs became paralyzed, arm muscles withered and the legs swelled.

At the same time, Dr. Eijhman, working in a prison hospital in the East Indies noticed that the chickens had conditions similar to beriberi but when they were given the less expensive brown rice the condition improved. It was not until 1911 that Casimir Fenk named this substance "B".

In 1915, Dr. Goldberger of the U.S. Public Health Service conducted an experiment that proved that pellagra, a disease that was sweeping the south was caused . . . by faulty diet. In 1937, Dr. Conrad Elvehjem demonstrated that niacin was an effective treatment for pellagra.

Around the turn of the century when industry was blooming and cities were growing, another diease was also growing in the crowded, dirty slums of the cities. This disease was called rickets, and it left many with weakened, misshapen bones. Children were hardest hit.

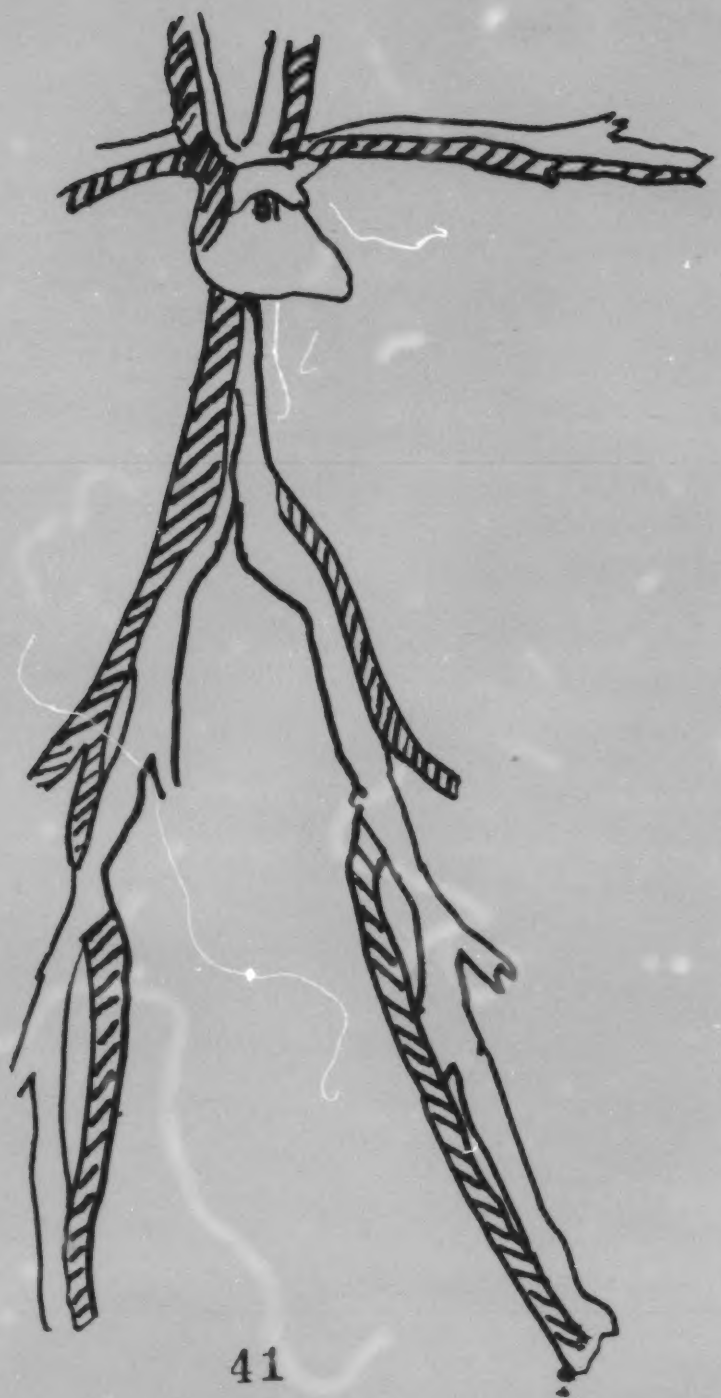
In fishing villages along the English seacoast, people had a home remedy for rickets. They drank the oil from the livers of the fish they caught. The doctors, however, looked down on this superstition. It was later discovered that fish liver oil, especially cod liver oil, contained vitamin D which does in fact prevent rickets. It was also discovered that vitamin D is produced when the body is exposed to sunlight.

Several other vitamins have been discovered since the vitamin D mystery was solved.

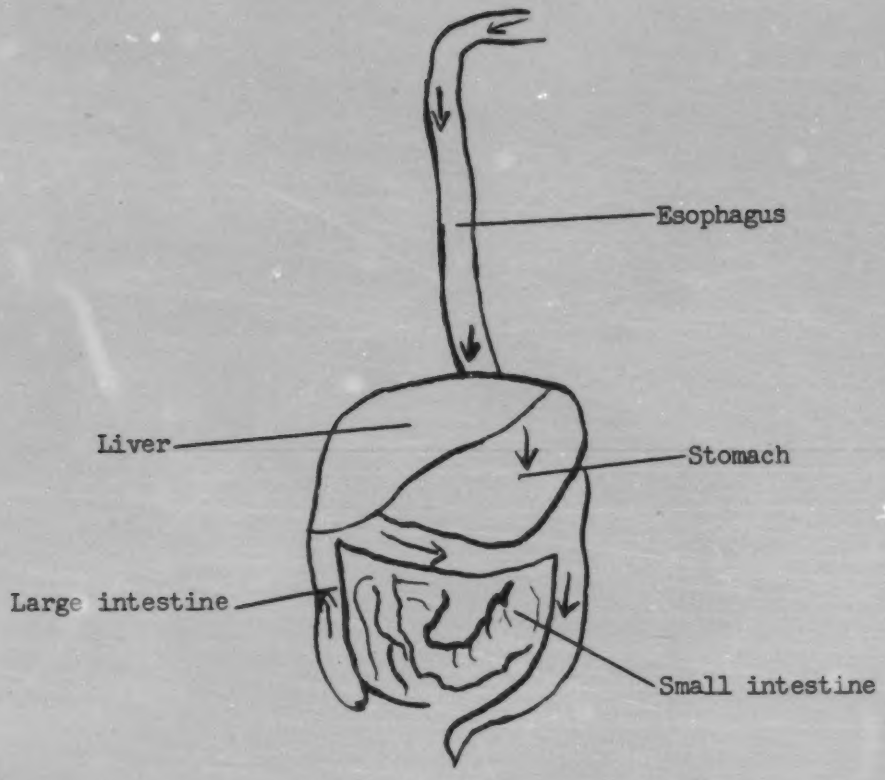
Nutrition is a new and exciting field. There is still much to uncover and learn

Many new areas are open to the nutritionists of today. The interaction of nutrition and genetics in the developmental process is providing an explanation for some congenital abnormalities and metabolic defects.

S. M. 2 (cont.)



S. M. 2 (cont.)



S. M. 3 SIMPLE EXPERIMENTS TO DETERMINE NUTRIENT CONTENT OF FOODS

1. To Test for Carbohydrate (Sugars)

Demonstrate test with following procedure:

1 part corn syrup
3 parts water
30 drops of water
10 drops Benedicts solution
Place in test tube one to three minutes

When color changes to red-orange. . . positive test for sugar.

To test a small bit of food, place the following in test tube:

small piece of food
30 drops of water
10 drops of Benedicts solution

Boil 1 - 3 minutes. . . label each test tube.

CAUTION: Benedicts solution is caustic. . . flood skin with water if skin is contacted.

Observation Form For Sugar Test

Food Tested	Is Sugar Present? Yes	No

2. To Test For Carbohydrate (Starch)

Demonstration:

1 T. cornstarch mixed with water
Add iodine

Purple color is a positive test for starch.

Test several foods by adding drops of iodine solution to food.

Observation Form For Starch Test

Food Tested	Is Starch Present? Yes	No

3. To Test For Fat

Rub sample of food on brown paper.
Hold up to light.
If fat is present, the brown paper will look transparent. Transparency will remain when spot has dried.
Demonstrate by using butter.

Test several foods.

Observation Form For Fat Test

Food Tested	Is Fat Present? Yes	No

4. To Test For Protein

Protein has a distinctive smell when burned.

Demonstration:

Burn a bit of hair or a feather.

Hold the material on the burner of a hot plate. . .with a disecting needle or on a needle in a cork. . . or food may be placed on a small piece of tin foil on a hot plate. . .(do not use tin foil on the coils of an electric range.)

If the distinctive odor is present. . .protein is present.

S. M. 3 SIMPLE EXPERIMENTS TO DETERMINE NUTRIENT CONTENT OF FOODS (cont.)

4. Observation Form For Protein Test

Food Tested	Is Protein Present? Yes	No

5. To Test Food For Minerals

Place a small amount of mashed food on tin foil.
Heat the sample until no more smoke is given off.
The gray ash that remains is mineral. The amount determines the quantity of mineral present. The process requires time and may be started early or used in conjunction with other activity.

Observation Form For Mineral Test

Food Tested	Amount of Minerals Present: Medium Amount	Small Amount	None

6. To Test Food For Vitamin C

Cup 1 - Mash a small amount of food with 2 T water.
Cup 2 - Combine $\frac{1}{2}$ c. water - 1 T cornstarch - 1 drop of iodine in disposable cup.

To test food sample (cup 1) place one drop of sample into mixture in (cup 2). Record the number of drops it takes to change solution to colorless.

The fewer drops required. . .the more Vitamin C present.

6. Observation Form For Vitamin C Test

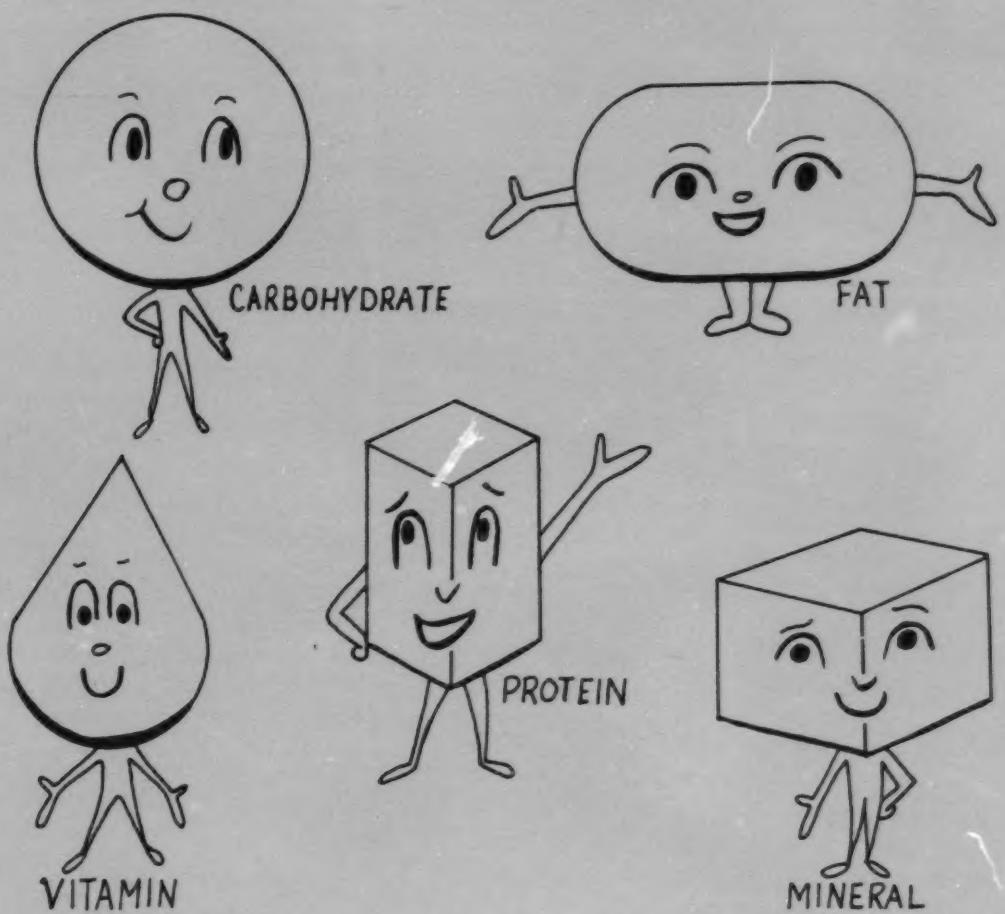
Food Tested	Number of drops required to change solution back to colorless

S. M. 4 NUTRIENT CHARTS AND SYMBOLS

Purpose: The Nutrient Charts are to be a visual reminder to the students of the major nutrients, their functions and food sources. The charts may be developed cooperatively by the students and teacher or the class may be divided into nutrient teams and each team may be responsible for development of an appropriate symbol and chart.

Materials: Large sheets of tagboard, cardboard or similar materials to serve as background for the display
A size 3" x 4" or larger is suggested
Yarn or string for hanging
Colored paper, crayons, glue and scissors
Magazines or newspapers containing picture of foods

Suggested Symbols for the Several Nutrients



S. M. 4 (cont.)

Sample Display Chart

(colorful, interesting title
which identifies nutrient)

Symbol for
Fat

Energy

Pictures of
Food Which
Supply Fat

Heat

Symbol for
Fat

S. M. 5 BEST AND FAVORITE FOODS

Directions: Complete the following sentences by writing the name of foods on the numbered lines.

1. My favorite between meal snack food is

2. The food that I like best for lunch or dinner is

3. A food which is good to eat to keep healthy is

4. A food which I eat to give me energy is

5. My favorite beverage is

Name of Food	Amount	Carbohydrate	Fat	Protein	Calcium	Iron	Vitamin A	Thiamine, Riboflavin, Niacin	Vitamin C	Vitamin D	Calories
1.											
2.											
3.											
4.											
5.											

S. M. 6 NUTRIENT ANALYSIS - PROTEIN FOODS (MEATS, CHEESE, EGGS, DRY VEGETABLES, MILK)

Food Item	Amount Unit	Calories	Protein (Gm)	Fat (Gm)	CHO (Gm)
Bacon	2 slcs.	90.	5.	8.	1.
Beef, Hamburger	3 ozs.	185.	23.	10.	0
Beef, Roast	3 ozs.	139.	27.	3.	0
Bologna	2 slcs.	80.	3.	7.	0
Chicken, Broiled	3 ozs.	115.	20.	3.	0
Eggs, Lg.	1	80.	6.	6.	0
Hot Dog	2	272.	18.	24.	0
Ham	3 ozs.	245.	18.	19.	0
Liver, Beef	2 ozs.	130.	15.	6.	3.
Peanut Butter	1 T.	95.	4.	8.	3.
Pork Chop	1 chop	260.	16.	21.	0
Sausage Links	2 links	125.	5.	11.	0
Tuna Fish	3 ozs.	170.	24.	7.	0
Fish Stick	4 sticks	160.	16.	8.	8.
Cottage Cheese	1/2 cup	130.	17.	5.	4.
Peanuts	1/4 cup	210.	9.	18.	7.
Beans in Tomato Sauce	1/2 cup	155.	8.	4.	25.
Whole Milk	1 cup	145.	10.	5.	15.
American Cheese	2 ozs.	210.	14.	18.	2.

S. M. 6 (cont.)

Food Item	Amount Unit	Calcium (Mg)	Iron (Mg)	Vit A (I.U.)	Vit C (Mg)	Thiamine (Mg)	Riboflavin (Mg)	Niacin (Mg)
Bacon	2 slcs.	2.	.5	0	0	.08	.05	.8
Beef, Hamburger	3 ozs.	10.	3.0	20.	0	.08	.20	5.1
Beef, Roast	3 ozs.	11.	3.3	0	0	.07	.20	4.8
Bologna	2 slcs.	2.	.5	0	0	.04	.06	.7
Chicken, Broiled	3 ozs.	8.	1.4	80.	0	.05	.16	7.4
Eggs, Lg.	1	27.	1.1	590.	0	.05	.15	0
Hot Dog	2	4.	1.2	0	0	.12	.16	2.2
Ham	3 ozs.	8.	2.2	0	0	.40	.16	3.1
Liver, Beef	2 ozs.	6.	5.0	30280.	15.	.15	2.37	9.4
Peanut Butter	1 T.	9.	.3	0	0	.02	.02	2.4
Pork Chop	1 chop	8.	2.2	0	0	.63	.18	3.8
Sausage Links	2 links	2.	.6	0	0	.21	.09	1.0
Tuna Fish	3 ozs.	7.	1.6	70.	0	.04	.10	10.1
Fish Stick	4 sticks	12.	.4	0	0	.04	.04	1.6
Cottage Cheese	1/2 cup	115.	.4	210.	0	.03	.30	.1
Peanuts	1/4 cup	27.	.8	0	0	.12	.05	6.2
Beans in Tomato Sauce	1/2 cup	69.	2.3	165.	3.	.10	.04	.8
Whole Milk	1 cup	352.	.1	500.	3.	.08	.52	.3
American Cheese	2 ozs.	396.	.6	700.	0	.02	.24	0

S. M. 7 ACTIVITIES AND USE OF CALORIES

ACTIVITY	APPROXIMATE NUMBER OF CALORIES USED PER ONE MINUTE OF ACTIVITY	APPROXIMATE NUMBER OF MINUTES OF ACTIVITY REQUIRED TO USE 100 CALORIES
Bicycling	8.2	12
Swimming	10.2	10
Bowling	7.1	14
Rowing	7	14
Tennis	6.1	16
Walking	4.6	21
Walking Upstairs	17.5	6
Dancing	3.5	29
Badminton	3.3	30
Standing - Doing Light Activity	2.5	40
Standing	1.4	71
Sitting	1.2	73
Skiing	10	10
Running or Jogging	15	6

S. M. 8 RECOMMENDED DAILY DIETARY ALLOWANCES, REVISED 1973
Food and Nutrition Board, National Academy of Sciences - National Research Council
Designed for the maintenance of good nutrition of practically all healthy people in the U.S.A.

								Fat-Soluble Vitamins		Water-Soluble Vitamins				Minerals			
	(years) From up to	Weight (kg)	Weight (lbs)	Height (cm)	Height (in)	Energy (kcal)*	Protein (g)	Vitamin A Activity (IU)	Vitamin D (IU)	Ascorbic Acid (mg)	Niacin (mg)	Riboflavin (mg)	Thiamine (mg)	Calcium (mg)	Phosphorus (mg)	Iodine (mg)	Iron (mg)
CHILDREN	1-3	13	28	86	34	1300	23	2000	400	40	9	0.8	0.7	800	800	60	15
	4-6	20	44	110	44	1800	30	2500	400	40	12	1.1	0.9	800	800	80	10
	7-10	30	66	135	54	2400	36	3300	400	40	16	1.2	1.2	800	800	110	10
FEMALES	11-14	44	97	155	62	2400	44	4000	400	45	16	1.3	1.2	1200	1200	115	18
	15-18	54	119	162	65	2100	48	4000	400	45	14	1.4	1.1	1200	1200	115	18
	19-22	58	128	162	65	2100	46	4000	400	45	14	1.4	1.1	800	800	100	18
	23-50	58	128	162	65	2000	46	4000	-	45	13	1.2	1.0	800	800	100	18
	51+	58	128	162	65	1800	46	4000	-	45	12	1.1	1.0	800	800	80	10
MALES	11-14	44	97	158	63	2800	44	5000	400	45	18	1.5	1.4	1200	1200	130	18
	15-18	61	134	172	69	3000	54	5000	400	45	20	1.8	1.5	1200	1200	150	18
	19-22	67	147	172	69	3000	54	5000	400	45	20	1.8	1.5	800	800	140	10
	23-50	70	154	172	69	2700	56	5000	-	45	18	1.6	1.4	800	800	130	10
	51+	70	154	172	69	2400	56	5000	-	45	16	1.5	1.2	800	800	110	10

* Kilojoules (kJ) = 4.2 x kcal

18-35

S. M. 9 GRANOLA

Serves 6-8

3/4 C. Rolled Oats (Oatmeal)
1/2 C. Coconut
2 T. Almonds
3 T. Wheat Germ
4 1/2 T. Raisins
1/3 C. Sunflower Seeds
1 T. Oil
2 T. Honey

Mix honey and oil together. Set aside.
Mix all other ingredients except dried fruit.
Pour honey oil over mixture and mix thoroughly.
Spread on a baking sheet.
Bake at 300 degrees F. until browned (about 1 hour). Turn every 15 minutes. After baking add dried fruit.
Store tightly covered.

Use your imagination - add almost anything

NUTRIENTS IN GRANOLA

Note: Not all ingredients were able to be analyzed, this is a partial list.

Food Item	Amount Unit	Calories	Protein (Gm)	Fat (Gm)	CHO (Gm)
Oatmeal	3/4 cup	98.	4.	2.	17.
Coconut	1/2 cup	225.	3.	23.	6.
Raisins	4 1/2 T.	120.	0	0	33.
Oil, Salad	1 T.	125.	0	14.	0
Honey	2 T.	130.	0	0	34.
Total		698.	6.	139.	90.
Per Serving		131.	1.	23.	15.

NUTRIENTS IN GRANOLA

Food Item	Amount Unit	Calcium (Mg)	Iron (Mg)	Vit A (I.U.)	Vit C (Mg)	Thiamine (Mg)	Riboflavin (Mg)	Niacin (Mg)
Oatmeal	3/4 cup	17.	1.0	0	0	.14	.04	.2
Coconut	1/2 cup	9.	1.1	0	2.	.03	.02	.4
Raisins	4 1/2 T.	27.	1.5	0	0	.06	.03	.3
Oil, Salad	1 T.	0	0	0	0	0	0	0
Honey	2 T.	2.	.2	0	0	0	.02	.2
Total		54.	3.9	0	2.	.24	.10	1.0
Per Serving		9.	.6	0	0	.04	.02	.2

How are we being robbed of Vitamin D?

S. M. 11 ONE MINUTE BREAKFAST - SERVES ONE

Combine in blender container:
1 C. Orange Juice
1 Egg
1/3 C. Powdered Milk

Blend for 10 seconds.
This may also be made with a rotary beater but may take two minutes.
Serve with whole wheat toast.

NUTRIENTS IN ONE MINUTE BREAKFAST

Food Item	Amount Unit	Calories	Protein (Gm)	Fat (Gm)	CHO (Gm)
Orange Juice	1 cup	120	2.	0	29.
Eggs	1 egg	80	6.	6.	0
Dried Milk	1/3 cup	51	4.	2.	5.
Whole Wheat Bread	2 slices	130	6.	2.	28.
Total Per Serving		381	18.	10.	62.

NUTRIENTS IN ONE MINUTE BREAKFAST

Food Item	Amount Unit	Calcium (Mg)	Iron (Mg)	Vit A (I.U.)	Vit C (Mg)	Thiamine (Mg)	Riboflavin (Mg)	Niacin (Mg)
Orange Juice	1 cup	25.	.2	550.	120.	.22	.02	1.0
Eggs	1 egg	27.	1.1	590.	0	.05	.15	0
Dried Milk	1/3 cup	123.	.0	175.	1.	.03	.18	.1
Whole Wheat Bread	2 slices	48.	1.6	0	0	.18	.06	1.6
Total Per Serving		223.	2.9	1315.	121.	.48	.41	2.7

S. M. 12 NUTRITIONAL LABELS SCAVENGER HUNT

Have products about the room. Either divide into teams or give each student a sheet to find all items or as many items as possible in a given period of time.

You may want to alter the tasks depending on products available.

Products Used

2% Milk
Fruit Cocktail
Tomato Paste
Wheat Germ
Grape Jelly
Converted Rice
Margarine
Enriched Creamettes
Macaroni
Peanut Butter
Instant Pudding
Macaroni and Cheese Mix
Wheaties
Crispy Critters
Grape Nuts
Total Cereal
Canned Peaches

Find something with Vitamin A added
Vitamin D added
Vitamin A & D.

1 cup serving contains 25% of days Vitamin D & 30% calcium.

Over 150 calories per serving, less than 10% of any nutrient.

2 servings contain 70% of days required Vitamin C

A cereal which supplies 1/3 (33%) of days supply of Vitamin A.

A food which gives considerably more nutritive value if something is added.

Find something (technically a vitamin supplement) because it contains more than 50% of RDA.

Which foods could be combined to attain 100% of RDA for Vitamin A?

Find a food that contains 15% of RDA of protein per serving.

Which contains more B vitamins.... 1 c. Creamettes or 2/3 c. Uncle Ben's Rice?

Which contains more calories...Vitamin C...Fruit Cocktail or Peaches?

S. M. 13 YOUR FOOD CHOICES

Purpose: This activity is designed to encourage students to translate nutrition information into decisions regarding food choices.

Materials: 5x7 card on which students can record foods eaten and the amount
Lunch bag into which students may place the 5x7 card and additional food choices which they make to complete the RDA
Prepare materials for use by students:
RDA chart
Food models
Nutrition labels for a variety of foods
Food comparison cards
Textbooks with nutrient analysis
Blank forms for visual graphing of nutrient contributions to RDA

Procedure: Divide students into teams.

Part I Each team will prepare a list of foods which represent those foods already eaten by a boy or girl 13 years of age on a particular day. At least 5 foods must be listed but no more than 8. The amount of each food is to be listed also.

Part II Teams will then exchange bags and determine what additional foods are needed to meet the RDA for the individual.

From the food models, food labels or comparison cards, teams will select additional foods to complete RDA.

Part III These foods and an indication of the amount to be eaten can be placed in the lunch bag and returned to the original team.
The team that made up the list of foods in Part I will then determine whether the food selections made by the other team met the RDA.

Scoring: Teams can be awarded 5 points for each nutrient RDA completely met as a result of the choices they made in Part II.

Teams can be awarded 5 points for each nutrient RDA which is scored correctly by them when the lunch bag is returned. Part III.

This activity may be modified by the teacher assuming responsibility for Part I and III.

REFERENCES

Books:

Bogert, Lotta Jean. Nutrition and Physical Fitness. Philadelphia: W. B. Saunders Co., 1966 and 1973.

Deutsch, Ronald. The Family Guide to Better Food and Better Health. Creative Home Library, Des Moines, Iowa: Meredith Corporation, 1971.

Deutsch, Ronald. The Nuts Among the Berries. New York: Ballantine Books, revised 1968.

Labuza, T. P. Food for Thought. Westport, Conn: AVI Publishing Co., 1974.

McDermott, Irene E., Mabel B. Trilling and Florence Nicholas. Food for Modern Living. New York: J. B. Lippincott, 1973.

McNaught, Ann. Illustrated Physiology. Baltimore: Williams and Wilkins Co., 1965.

Martin, Ethel Austin. Nutrition in Action. New York: Holt, Rinehart and Winston, 1963.

Peck, Leilani B., Lenora Moragne, Mary S. Sickler and Ethel Washington. Focus on Food. New York: Webster Division, McGraw-Hill Co., 1974.

Pamphlets:

"Food and Dental Health", "How Your Body Uses Food", "Coronary Heart Disease: Risk Factors and the Diet Debate". National Dairy Council, 111 North Canal St., Chicago, Illinois.

"Diet and Dental Health." Minnesota Department of Health, Section of Health Education. 717 S.E. Delaware St., Minneapolis, Minnesota.

Periodicals:

Nutrition Review. New York, New York: Nutrition Foundation Inc., 99 Park Avenue.

Nutrition Today. Annapolis, Maryland: Nutrition Today Inc., 101 Ridgely Ave.

Slocum, D. D. "Wrestling Weight Control." Journal of American Medical Assoc., 1967.

Tuttle, W. W. & Herbert E. "Work Capacity with No Breakfast." Journal of American Dietetic Association, August 1967.

Tuttle, W. W. and Herbert E. "Effect on School Boys of Omitting Breakfast: Physiologic Response, Attitudes and Scholastic Attainment." Journal of American Dietetic Association, 1967.

S. M. 14 (cont.)

Visuals:

How A Hamburger Turns into You. Food, Energy and You. Vitamins From Food. Perennial Education Inc. 1825 Willow Road, Northfield, Illinois.

How Food Becomes You. Why Not Snack? (Filmstrip) National Dairy Council, 111 North Canal Street, Chicago, Illinois.

Eat to Your Heart's Content. Minnesota Department of Health. Section of Public Health Education, 717 Delaware Street S.E., Minneapolis, Minnesota.

The Real Singing, Talking, Action Movie About Nutrition. (Filmstrip) Oxford Films, 1136 N. Las Palmas, Los Angeles, California.

Your Snacks: Chance or Choice? (Poster 18½ x 24½ inches) Food Models, Comparison Cards. National Dairy Council, 111 North Canal St., Chicago, Illinois.

Vitamins, Nutrition and Health. Upjohn Company. 7000 Portage Road, Kalamazoo, Michigan.

UNIT TITLE: *NUTRITION: BUYING AND SELLING*

UNIT FOCUS: The selection of foods which will provide adequate nourishment is the focus of this unit. Factors which influence foods choices are identified. The Recommended Daily Dietary Allowance is introduced as a guide to the selection of foods. Nutritional labeling, food fads and fallacies, food advertisements and food prices are examined to determine their usefulness in the selection of foods which provide essential nutrients. Experiences incorporated in the unit provide opportunity for students to observe, describe, differentiate, compare, and formulate generalizations.

RATIONALE: Young people are assuming increasing responsibility for food choices which directly involve them as buyers of foods. Furthermore, they influence the food choices made by others responsible for meal planning and food purchasing. In turn, young people are subject to influence from a variety of sources including: peers, the food industry, food faddists, and the family. Frequently these outside sources present conflicting information regarding the nutritive values of foods, effects of foods on weight control and health, and the best food dollar value for money expended. Informed decision making under these circumstances is difficult. Instruction which assists young people in developing an accurate informational base on which to make choices will serve a useful function. Furthermore, instruction which assists young people in developing information processing skills can be useful in making informed decisions.

INSTRUCTIONAL OBJECTIVES:

Comprehension of factors which affect food choices
Comprehension of the effect of food choices on health and well-being
Comprehension of the functions of essential nutrients
Comprehension of the guideline for food choice making provided by the Recommended Daily Dietary Allowance
Comprehension of the concept of energy balance
Willingness to examine personal food choices in terms of nutritional adequacy
Comprehension of nutritional labeling as a guide for food choice making
Comprehension of the relationship of cost to nutrient value of foods
Ability to differentiate reliable, accurate information from unreliable, inaccurate or incomplete information
Willingness to seek reliable information as basis for food choice making
Knowledge of career opportunities in the field of nutrition

EDUCATIONAL BACKGROUND: Learnings in the unit assume previous study of nutrition. Level II

SUGGESTED TIME: 3 weeks

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	Pre-Teaching: Order and preview the film **Food for Life.**	S.M.20
	Order or prepare copies of Recommended Daily Dietary Allowances.	Good Health Through Nut S.M.8
	Secure copies of "Nutritive Value of Foods," Home and Garden Bulletin no. 72, or assemble textbooks which provide nutrient values of foods.	S.M.20
	Order food comparison cards and food models.	S.M.20
	Review and modify suggested interview forms for How Do You Break the Fast?. Prepare copies of interview form.	S.M.1
	Students may make a self-report, interview fellow classmates, or interview other individuals in the person by phone.	
	If the later procedure is used, safeguards should be taken to insure the privacy of the persons interviewed. The teacher may select someone familiar to the students from within the school or community and interview that person regarding her/his food selections. The information collected may be used to illustrate selected concepts throughout the unit. The individual may be identified to the students as a mystery person.	
The flavor, color, texture, and aroma of foods influence an individual's choice of foods. To some extent, the taste, color, and aroma of foods which an individual prefers are learned as a result of experiences with foods. Throughout life the groups of people and individuals with whom a person identifies will influence the individual's food preferences. The understanding which individuals have of the relationship of foods to health and appearance can influence food choices. The quantity and variety of foods available will influence the individual's choice of foods. The amount of money which individuals have will influence their food choices in regard to type, quality, and quantity of food purchased.	Assemble a variety of foods which might be available to students as snack food. Include small quantities of the following foods: a) Pieces of fresh fruit b) Celery, carrots, and other fresh vegetables c) Potato chips d) Fruit juice e) Pop corn f) Cookies g) Soda pop Display food at the front of the room. Prepare a transparency with the following questions: Why did you choose the particular food from the snacks that were displayed? When you raid the refrigerator, freezer, or pantry shelf, what do you choose. Why? When you prepare a meal for yourself, what foods do you choose? Why? Prepare transparency of Opinions about Foods. Transition: Direct students' attention to the display. Invite students to select one of the foods. When selection is completed, direct attention to the transparency and have each student respond in writing to the questions.	S.M.2

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	Continue: Some of you chose a snack from those displayed. Why did you choose that particular item?	
	Record reasons for choices.	
	Continue with other questions related to reasons for choices and factors which influence choices.	
	Different factors appear to influence the food choices which individuals make.	
	Often food choices are influenced by several factors at the same time.	
	How carefully do you consider the food choices you make?	
	How much time do you take to think about what you will eat?	
	Let's find out how you feel about the food choices which you might make.	
	Explain voting procedure to students. Practice with several statements not related to food choices.	
	Reveal transparency or chart on which statements are written and allow time for students to indicate their position in regard to each statement.	
	Estimate the number of students that respond in each direction. Record on transparency.	
	Transition: The film which we are going to see has four young people also involved in making food choices. As you view the film, keep in mind the factors which appear to influence the young people's choices and the results or effects of the choices.	
	Following the viewing of the film, guide the students in the formulation of responses to the following questions:	
An inadequate supply of essential nutrients limits or reduces the body's ability to function.	What factors appeared to influence the food choices of American teenagers?	
	What effect did the choices have on the young people?	
An oversupply of some nutrients may also limit the body's ability to function.	What factors appeared to influence the food choices of the young people from other countries?	
	What effect did the food choices have on the young people?	
	Pre-Teaching: Prepare information page Foods, Nutrients and Person Power.	S.M.3
	Transition: Have students select a partner or divide the class into groups of three.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL

Give each student a copy of Foods, Nutrients and Person Power.

Arrange chairs to allow students to sit in a circle.

Guide the students in reading the information page. Clarify with additional brief comments as necessary.

Ask students to place one of their shoes in the center of the circle. Add other types of footwear to the display: socks, boots, atheletic shoes, ski boots. Add several shoe boxes to the display.

Write the following question on the chalkboard:
"HOW ARE NUTRIENTS LIKE FOOTWEAR?"

Direct students' attention to the question.

Continue: Talk with someone next to you. List as many ideas as you can in five minutes.

Share responses and record on chalkboard.

Possible responses:

There are many kinds of footwear and there are many kinds of nutrients.

Different shoes are used for different purposes. Nutrients also have different functions.

Without socks or other footwear, it is difficult to walk, run, etc. Without nutrients the body doesn't function well, either.

The same size of shoe doesn't fit everyone. The same amount of nutrients isn't suited to every perosn.

When footwear doesn't fit well, the body is uncomfortable. When the body doesn't get the nutrients it needs in the amounts needed, it becomes uncomfortable.

Encourage responses. Refer to the information sheet for ideas for comparisons.

Ask: How are nutrients different from footwear?

It is impossible to tell what nutrients might be in a food by looking at it or tasting it. Looking at shoes and wearing them can tell you something about how they will function.

All shoes are made by people from various materials. Nutrients are produced through the process of photosynthesis. (Some nutrients have also been produced by people from chemicals.)

The body reacts quickly to ill-fitting shoes. The body's reaction to a lack of nutrients is slower and less easily noticed.

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	Encourage students to identify other differences.	
	Ask: How is choosing footwear like choosing foods? Encourage responses.	
	Ask: How is choosing footwear different from choosing foods?	
The Recommended Daily Dietary Allowance has been developed as a guide to food selection.	**Pre-Teaching:** Prepare individual copies of the Recommended Daily Allowances for youth or prepare a large wall chart of the RDA for youth.	
	Secure a gram scale.	
	Secure a copy of the Guide to Good Eating poster.	
	Assemble samples of nutrition labels from cereals, canned goods, bread, milk, and other food products.	
The RDA lists the major nutrients which have been found to be needed to maintain health.	Transition: Selecting foods is similar to selecting shoes because individual characteristics influence both choices.	
The RDA also states how much of each nutrient is needed by persons of different ages, heights, and weights.	Nutrients are selected to meet individual needs just as shoes are selected to fit individual feet.	
The amount of each nutrient which is recommended on the RDA is intended to provide adequate nutrition for most individuals who live in the United States.	The two tasks are similar because people with special training can help the individual to make a more satisfying selection.	
	Doctors have studied the structure of the foot. Some shoes have been designed to make the foot comfortable and keep it in good condition.	
	Nutrition workers have studied and are studying people to learn how the body uses the nutrients in foods.	
	As a result of study done by nutrition workers, several guides to food selection have been developed.	
	One of these guides is the basic four food groups.	
	Refer to the wall poster of the four food groups and identify the groups.	
	Continue: Another guide which has been developed is the Recommended Daily Dietary Allowance (RDA). Refer to chart.	
	Ask: Has anyone heard this title before?	
	Has anyone seen a chart somewhat like this before?	
	Continue: The Recommended Daily Dietary Allowance is being used on the labels of food products which have had nutrients added to them or about which a claim of nutritional value is made.	
	Give students examples of a nutrition label.	

Nutrition labels appear on many processed and packaged foods. The label contains the following information:

- number of calories in a serving of the food
- grams of protein
- grams of carbohydrate
- grams of fat
- percentage of the RDA for protein
- percentage of the RDA for the vitamins A, B1, B2, Niacin, C and D
- percentage of RDA for the minerals calcium and iron

The label also gives the number and size of servings.

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	Ask: What do you find on the label related to the RDA?	
	Accept student response and explain the relationship of the information to the RDA.	
	For example:	
	Student: It says this Hershey candy bar cantains three grams of protein.	
	Teacher: The RDA for protein is expressed in grams.	
	Show a gram weight and/or weigh one gram of food.	
	The statement means that when the whole candy bar is eaten the body is getting three grams of protein.	
	Ask: According to the RDA, how much protein is recommended for someone your age?	
	Do you notice any other information on the label which refers to protein?	
	Explain the meaning of the percentage of RDA.	
	Continue a similar line of questioning and explanation in regard to other information on the labels until students are familiar with the kinds of information on the RDA chart and its relationship ot the nutrition label.	
	Pre-Teaching: Prepare students copies of How Do You Break the Fast?.	S.M.1
	Prepare copies of Nutrients: Substances in Foods.	S.M.4
	Assemble copies of "Nutritive Values of Foods."	S.M.20
The nutrient carbohydrate is used by the body to supply heat and energy.	Interview mystery person regarding breakfast meals.	
An oversupply of carbohydrates results in the storage of excess carbohydrate as body fat.	Transition: Give each student a copy of How Do You Break the Fast?.	
Excess body fat may place undue strain on the heart and other organs of the body.	Clarify the directions and allow students to complete the listing of foods. Circulate and give assistance as needed.	
Carbohydrates appear to have an effect on the quality of the teeth.	Ask: How wise were your choices? Did your choices provide some of each of the nutrients recommended on the RDA?	
If carbohydrate-rich foods replace other foods in the diet that provide nutrients needed for tooth formation, the quality of the teeth developed may be inferior.	Provide students with Nutrients: Substances in Food and "Nutritive Values of Foods."	
	Familiarize students with charts by working through mystery person's responses.	
	Guide students in determining the percentage of the following nutrients provided by the breakfast meal: protein, calcium, iron, vitamin C, etc.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
The oral (mouth) environment affects the extent to which dental caries (cavities) will develop. An environment which contains microorganisms and carbohydrates will result in the production of an acid which attacks tooth enamel and produces dental caries. Carbohydrate-rich foods which cling to the enamel or become lodged between teeth encourage the action of the microorganisms. Carbohydrate-rich foods have a less harmful effect on tooth enamel when followed by liquids or other foods which act to scrub the carbohydrates from the tooth surface. A diet lacking in carbohydrates may lead to weight loss, fatigue, and a general lack of energy. A severe case of caloric deficiency, which may be due to a carbohydrate deficient diet, is marasmus. The symptoms of marasmus include thinness and wasting away of tissue. The nutrient fat is used to supply energy to the body. Fats also supply essential fatty acids and carry fat soluble vitamins A, D, E, K. An oversupply of fats is stored in the body as fat and contributes to overweight. Protein is used by the body to promote the growth of body tissue. Protein is used to repair all body tissues. Protein is used to supply energy when the fat and carbohydrate intake is not adequate	Continue: For which of the nutrients did the breadfast meal provide less than 30% of the RDA? Accept student responses and write names of nutrients on the chalkboard. Ask: What are the functions of these nutrients? Record responses under the nutrient titles. Record all responses whether they are accurate or inaccurate. When a list of possible functions has been developed, continue: Some of the nutrients have no functions listed and others have several, some of which the class seems unsure about. Divide the class into teams of two or three individuals and have them determine from resource materials the function of the various nutrients. Several teams of students may be assigned to the same nutrient. Assist students in the identification of nutrient functions. Student groups may prepare a collage or other visual to accompany their report.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
to meet energy needs. Growth retardation may occur if protein deficiency is severe and caloric intake is more adequate. Poor muscle tone, poor posture, and lack of resistance to disease are related to insufficient intake of protein. Vitamin A helps keep the skin clear and smooth and the mucous membranes firm and resistant to infection. It also helps promote healthy eyes and prevents night blindness. Insufficient amounts of A may result in increased susceptibility to infection. Vitamin B1 or Thiamine helps promote normal appetite and digestion. It helps to keep the nervous system healthy and to prevent irritability. It also assists the body in releasing energy from food. Insufficient amounts of vitamin B1 may result in nervousness and irritability, unusual fatigue, and poor appetite and digestion. Vitamin B2 helps the cells use oxygen and release energy from food. It also helps to keep the skin, tongue, and lips healthy and prevents scaly, greasy skin around the mouth and nose. It helps keep the vision clear. Insufficient amounts of vitamin B2 result in reddening of the eyes, light sensitivity, blurred vision, and scaly skin around the mouth and nose. Niacin helps keep the nervous system, skin, mouth, tongue, and digestive tract in healthy condition. It also helps the cells to use other nutrients, expecially protein and fat. Insufficient amounts of niacin	**Pre-Teaching:** Assemble food models or food pictures and nutrient value data for a variety of foods which students might choose for lunch. Display food pictures as they might be in a cafeteria line. Transition: Any food that is eaten during a 24 hour period provides nutrients which help to meet the RDA. Direct attention to the display. Let's assume that it is lunch time. You may select the foods you would eat from those displayed. Students may list the foods they would choose or collect the actual pictures or food models. Assist studnets in determining the nutrients and amounts which the luncheon meal contributed toward meeting the RDA. Students may complete a form similar to the one used previously. **Pre-Teaching:** Prepare copies of How Do You Measure Up? - Boys and How Do You Measure Up? - Girls. Secure colored pencils, magic markers, or crayons. Transition: Anyone feel like a snack today? What do you think would be good? Accept student responses. Ask: Why does that seem good to you? Explore reasons for several choices. Ask: How would that choice affect the RDA? Let's find out how your food choices measure up to the Recommended Daily Dietary Allowances. Give each student a copy of How Do You Measure Up? Provide color code for nutrients to match the comparison cards color code. Illustrate the procedure for entering total percentages of nutrients from breakfast and lunch on How Do You Measure Up? charts. Assist students in completing the How Do You Measure Up? charts. Have students identify nutrients for which less than 50% of the RDA has been met.	S.M.5

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
may result in inflamed skin, nervousness, and digestive disorders. Vitamin D helps the body to use calcium and phosphorus. Insufficient amounts of vitamin D may result in poorly developed bones and teeth and slow clotting of the blood. Vitamin C helps make cementing materials that hold the body cells together. It also helps make the walls of blood vessels firm and assists the body in resisting infection and healing broken bones and wounds. An insufficient amount of vitamin C may cause sore and bleeding gums, loss of appetite, tenderness in the joints and limbs. Calcium and phosphorus are minerals which help in the growth of bones and teeth. They also contribute to the functioning of muscles and nerves. Iron is necessary for the production of hemoglobin, the red substance in the blood which carries oxygen to the cells. Iron deficiency may cause a feeling of tiredness, lack of pep and energy, paleness, and dizziness.	**Pre-Teaching:** Collect a variety of beverage advertisements (printed and verbal). Include fruit juices, fruit drinks, drink mixes, soda pop, cola. Prepare Consider the Choices: Beverages (Small Group Study Form). If laboratory space is available, assemble supplies and equipment for preparation of a small quantity of the beverage for a tasting laboratory. Transition: Display advertisements for fruit drinks, fruit juices, and other beverages. Survey students as to their preference among the various	S.M.6 S.M.7

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	products. Divide students into small groups for the purpose of completing the study of one of the beverage products.	
	Have students prepare the drink according to package directions, record the required information on the study form, and prepare a visual graph illustrating the percentage of RDA in one serving of the beverage.	
	Students may report their findings to the total group. Record the information on a master chart and display nutrient graph.	
	Students may taste the drink and rate it according to their personal preferences.	
	At the conclusion of two or three reports, ask:	
	What do you notice about the nutrient content of the fruit juices and fruit drinks?	
	What do you notice about the cost per serving?	
	What do you notice about the calories per serving?	
	If someone were concerned about meeting the RDA for vitamin C, what would you suggest?	
	Continue with the remainder of the reports.	
The cost of berverages is not directly related to the nutrient content of the beverage.	Ask: What can we say about the relationship of cost and nutrient content?	
	What seems to be true of the cost per serving of beverages and the caloric content?	
	If someone were concerned about meeting the RDA for vitamin C at the lowest cost, what would you suggest?	
The chart identifies various forms of milk and the amount of certain nutritents in the milk.	**Pre-Teaching:** Prepare nutrient analysis chart for milk.	S.M.8
	Secure nutrient comparison cards for milk.	
The chart gives information about calcium, phosphorus, protein, fat, and the calories which milk provides.	Transition: The beverages we have been studying are often selected for a between-meal snack.	
	Milk is another beverage which can be used as a snack food as well as a beverage at meals.	
The information about the amount of nutrients is for one eight ounce glass.	Let's find out what you think about milk. If you agree with the statement, wave your right hand. If you disagree, wave your left hand.	
The chart was developed by the USDA Research Bureau.	Milk is a perfect food.	
	Chocolate milk is the same as chocolate drink.	
The forms of milk differ in regard to the number of calories per serving.	Skim milk has fewer nutrients than other kinds of milk.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
The forms of milk which contain more grams of fat supply more calories.	Milk is a fattening food.	
	Milk is for babies and little children.	
The forms of milk which contain more protein and less fat are lower in calories.	Milk is for everyone.	
	Give each student a copy of the milk nutrient information chart. To familiarize students with the types of information presented on the chart, ask:	
Milk contains less than 3.5% butterfat has had some of the fat removed.	What kinds of information are given on the chart?	
	What is the unit of measurement used as a base for comparison?	
Fluid milk which has nonfat milk solids added provides more protein, calcium, and phosphorus than other forms of fluid milk.	What is the source of the information?	
	Direct students' attention to the information presented on the chart.	
When fat or fat-containing food, such as chocolate, is added to the milk, the calorie content is increased. Fat provides more calories per gram than any other nutrient.	If we compare the various kinds of milk considering the fat, protein, and calories, what do we find?	
	How can these differences be explained?	
	Do the different types of milk provide the same amount of other nutrients?	
	What differences do you note?	
	What percent of the RDA for each of the nutrients does one glass of whole milk provide? (Show comparison card.)	
	Compare nutrients of fruit drinks, soda pop, and cola to milk.	
	Compare the calorie content of various types of milk to other beverages.	
	At the conclusion of the nutrient comparison activities, have students respond to the following statements:	
	I was surprised that...	
	I learned that...	
	I was pleased that...	
	Share responses.	
	Pre-Teaching: Prepare copies of Choose Food To Fit Your Activities.	S.M.9
Energy is supplied to the body by the nutrients carbohydrate, fat, and protein.	Prepare nutrition labels for viewing on the opaque projector or provide several for students to view in small groups.	
Carbohydrates, fats, and pro-	If possible, select labels from foods which are frequently	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
teins are found in foods in varying amounts. Foods containing large amounts of fat supply more energy (for a similar weight) than foods that contain large amounts of carbohydrate or protein. Energy is released whenever food is burned by the body. The energy value of food is measured in heat units called calories. One calorie is equal to the heat required to raise the temperature of one gram of water one degree Celsius, or 2.2 pounds of water one degree Fahrenheit. One gram of pure carbohydrate or protein, when used by the body, provides four calories. One gram of pure fat, when used by the body, provides nine calories. The body uses energy in a number of different ways. Energy is required to maintain the internal and involuntary activites of the body such as, breathing, heart beat, digestion, growth and rebuilding of tissues. Energy is required for external and voluntary activities which the individual controls: running, skating, dancing, playing a musical instrument. If more calories are ingested than expended, the extra energy is stored in the form of body fat. A weight gain results. An energy balance occurs when the intake of calories (energy) in the form of nutrients is equal to the output of calories (energy) in the form of work.	eaten by students, i.e., pizza, candy bars, hot dogs. Secure balance scale or prepare a transparency of a balance scale. Transition: Display nutrition labels. Direct attention to the labels. Explain the energy function of the nutrients. Refer students to nutrition labels. Ask: How many grams of fat does the food provide? Protein? Carbohydrate? Explain the meaning of the term calorie. Label one side of the balance scale "CALORIE INTAKE." Ask: If someone ate one serving of the food for which you have the label, how many grams of carbohydrates would be eaten? Protein? Fat? How much energy would be supplied? Does anyone have the label from a food which would provide more calories per serving? Fewer? Describe the body's use of the nutrients carbohydrate and fat to meet energy needs. Illuatrate and explain the effect of body size on energy needs for involuntary activities. Illustrate and explain the effect of activity level on energy needed for voluntary activities. Describe the function of protein in meeting body needs for growth and repair functions and energy functions. Give each student a copy of Activity and Energy. Ask: If someone ate a medium orange, how many minutes of resting would be required for the body to use the energy supplied? To familiarize students with the chart, continue a similar line of questioning. Ask: Can someone explain what happens when a person gains weight? Give a specific example. Clarify and work with students to develop the concept of energy balance. Can someone explain what conditions occur when there is a weight loss?	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
If more energy is used than supplied by foods eaten, the body will use stored energy. This will result in a loss of weight.		
Nutritional labeling provides a means of identifying the specific nutrients and the nutrient content of foods. Persons interested in weight control, or those who are on special diets for other reasons, will find the information helpful in selecting the proper foods. Nutritional labeling can help the consumer improve the quality of her/his diet.	**Pre-Teaching:** Prepare interview forms Snacks—Choice or Chance?.	S.M.10
	Transition: Familiarize students with the directions for the survey.	
	Each student may survey several students regarding the same question.	
	Students who interview using the same choice situation can meet as a group to compile information regarding foods selected and reasons for selections.	
For those products which do not carry nutrituve labels, the consumer can estimate the nutrient and caloric value if he/she knows the nutrients provided by the particular food or its ingredients.	Each group should then determine the number of calories per serving for the most frequently selected snacks and identify other nutrient contributions of those snack foods.	
	Report findings to the total class.	
	Ask: If someone wanted to eat snacks and not gain weight, what would you suggest?	
	Which snack food provides the largest number of calories and the fewest other nutrients.	
	Which snack food would you choose? How will it affect the RDA?	
	Students may enter the information on their How Do You Measure Up? charts.	
Federal law requires that ingredients used in processed and parkaged foods be listed on the label, except when a standard of identity has been established.	**Pre-Teaching:** Order the filmstrip **Read the Label; Set a Better Table.**	S.M.20
The ingredients in packaged and processed foods are listed in order of the amount by weight, starting with the ingredient present in the largest amount.	Preview film and prepare appropriate viewing guide.	S.M.11
Absence of a list of ingredients means that the product meets the federal government standards of identity and a list of the contents is not required.	Transition: This film will present some ideas with which you may be familiar. It will also present some ideas that may be new to you. The viewing guide will alert you to important ideas.	
Example: Peanut butter has a standard of identity, that is why the ingredients are not listed on the label. Therefore, any brand of peanut butter meets this standard. Any of the manufacturers can make their product "better" than the standard, but they cannot make it poorer. This applies also to canned tuna, eggs and egg products, milk, macaroni and noodles, etc.	View film.	
	Discuss and clarify questions on the viewing guide.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
Foods which are standardized are: milk cream cheese and cheese products jellies, jams canned tuna eggs and egg products nuts macaroni and noodles peanut butter catsup		
A standard of identity would be very difficult to administer on all foods. It is used on common and widely-used foods.		
The words "enriched" and "fortified" on food labels help to identify these nutritionally improved foods.		
The enrichment process replaces nutrients lost in processing and refining some foods. Common nutrients added to breads and cereals are thiamine, riboflavin, and niacin.		
Fortification goes beyond enrichment. A nutrient is added that was **not** originally present or that was present in a small amount. Examples are vitamin A fortified margarine, iodized salt, etc.		
The FDA does limit the amounts of nutrients that can be added to foods. If not, companies could compete with each other for "super foods."		
When the nutrient content of foods is similar, the cost per unit of measure of the foods will indicate which one of the similar food items will provide the most nutrient at the least cost.	**Pre-Teaching:** Select four or five parity products for study, i.e., peanut butter, bread, ready-to-eat cereal, canned soup, hot dogs. Assemble packages, cartons, etc. which represent the variety of sizes in which the product is available. Display in four locations in the classroom. Prepare shopping card.	S.M.12 S.M.13
Unit price or cost per unit is the price for a certain standard of quantity. Grams or ounces are a common standard for comparison.	Transition: Direct students' attention to the display. Assume that the following items are on your shopping list: peanut butter ready-to-eat cereal bread canned soup	
To determine the unit price:		

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
identify the unit of measure and divide the net weight of food by the price. The result is the price per unit.	Each of the displays in the classroom represents the variety of items available in the store.	
	Visit each of the displays and select the item which you believe is the best buy.	
Knowledge of the price per unit of food makes it possible to compare the cost of the same food in different size packages the cost of different brands of the same food the cost of different forms of processing of the same food.	You may examine the package. Please be sure that the price remains with the item.	
	Record the name and number and total price of the item you selected on the shopping card opposite the title.	
	List the reasons for selecting that item. Why did you consider it the best buy?	
Unit price is not a reliable indicator of caloric value of foods nor of nutritient content.	When students have completed the shopping activity, divide the class into groups of three or four students. Designate the product which the small group is to investigate, i.e., soup, bread, etc.	
	Have the small group complete the cost per serving form for the various products in the display.	
Unit price is not a reliable guide to taste or quality of food.	Have students complete the nutrient per serving form for the various products on display. (Divide the price of the food by the net weight.)	
	Guide students in reporting findings to the total class.	
	Ask: Was the product you selected the best buy? Why?	
	Is price an accurate guide to nutritive value of foods?	
	Is package size a reliable guide to the cost per serving of food?	
	Are larger packages always less expensive than smaller packages of the same product?	
Brand names, symbols, and pictures are used to distinguish a particular manufacturer's product from other similar products.	**Pre-Teaching:** Assemble five ounce samples of two well known brand name peanut butters and two less known brands of peanut butter. Identify each sample by letter or number.	
	Prepare copies of Brand Name Study.	S.M.14
Brand name gives no information about the nutrient value or caloric value of the product.	Transition: Arrange a tasting panel of four or five students.	
Brand name is not a measure of quality.	Each student will taste the peanut butters on 1/16 of a slice of unbuttered bread.	
Many food manufacturers package and sell the same product under several brand names.	As students sample the peanut butter, each is to record the brand name which he or she believes have been tasted.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
There is often a price variation which is related to the extent to which the brand is nationally known.	Students may indicate their taste preference for the peanut butters by rating them on a scale from 1 to 5, with 5 being awarded to the peanut butter which would be selected most often. All ratings are to be done individually by student taste panel members without exchange of ideas. At the conclusion of the taste test, reveal actual brands and student ratings. Complete information on chart regarding price and cost per serving. Guide students in summarizing. Encourage students to complete other brand/cost comparison studies with products which are widely advertised, i.e., cola beverages, canned fruits and vegetables, frozen orange juices, pancake syrups, etc.	
Information presented in advertisements is often designed to convince the consumer to buy a particular brand by making subtle appeals which are not related to product quality, nutritive value, or quantity. Information which describes qualities of the product are also part of some advertisements. Information of this type may be useful to the consumer in selecting foods.	**Pre-Teaching:** Assemble advertisements for a variety of food products. Oral advertisements may be written on cards. Students may also be encouraged to bring advertisements to class. Prepare copies of Advertisements: Do They Help Consumers?. Transition: Have each student select an advertisement from those assembled. Direct students in completing the worksheet Advertisements: Do They Help Consumers?.	S.M.15
A food fallacy or myth is an untrue or unproven idea about a food, group of foods, or preparation technique which is believed to be true by a person or group of persons. Persons who believe and follow food faddists can be recognized by the following characteristics: There is an exaggeration of the goodness of a particular food or combination of foods. The food or food combination is viewed as having magical or miraculous power. or There is an exaggeration of the harmfulness of certain foods; therefore, the fad recommends the omission of a particular	**Pre-Teaching:** Order film **The Health Fraud Racket** or **Foods: Fads and Facts.** Prepare copies of Popular Diets: Are They Myths or Realities? Prepare copies of fact or fallacy statements. Transition: Have students complete the fact or fallacy opinionaire. Discuss the meaning of the terms fallacy and fad. Identify statements which are fallacies and the characteristics which are similar among the statements which are fallacies.	S.M.20 "Economical Meal Plannin S.M.20 S.M.16

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL

food or food combination to avoid poor health or to cure an ailment.

Fads tend to be promoted by people who lack training and knowledge in the science of nutrition.

Food fads arouse strong feelings of fear, hope, or curiosity.

Faddists often present an over-simplified cure or solution to health problems which are very complex and which have not been cured or prevented.
i.e., carrot juice releives leukemia; garlic reduces high blood pressure; organically grown foods prevent aging.

Calorie counters, youth and beauty seeker, and health hunters are some of the people who are persuaded to follow food fads.

The truth or falsity of claims about food and its effect on the body can be judged through the following steps:

1) Examining the claim to determine whether it is realistic.

2) Determining the training or education of the person making the claim. Persons who have training and knowledge in the field of health and nutrition (i.e., medical doctor, dietitian) are more reliable sources of nutrition information than are persons who have no training.

3) Determining the realiability of the publisher of the information. Information which has no identified source is probably not as reliable as that which has identified sources. Information which is published by state and federal governmental agencies is generally reliable.

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
There are many myths about nutrition that people continue to believe. These fallacies or misconceptions about food are numerous. Food faddists may spread misleading ideas about food and try to sell the public their products which are sometimes offered as cure-alls for many disease conditions. Persons who deliberately spread false information or half-truths regarding food or medicine are known as quacks. Persons who are quacks will have some of the following characteristics: have little regard for the medical profession, nutrition experts, or the government; usually have something to sell which will result in a profit to the sellers; may ask a high price because people associate high price with good quality; make magical calims for a particular product or diet; offer testimonials from former patients; and are probably not medically or nutritionally trained. Some claims state that the product is a cure for a certain disease. If people have not educated themselves against these statements, they will waste money and also deceive themselves about being cured. Selecting foods based on food fallacy or myth or food fads encourages the waste of money and may be dangerous to the health of the individuals.	Show film. Divide students into small groups and have them discuss the following questions: What are the characteristics of food faddists? How can you identify food faddists? How is a food fad follower different from a thinker? **Pre-Teaching:** Assemble samples of food sold in health food stores and advertised as health foods. Assemble similar foods sold in the grocery store. Transition: Display "health" foods and "regular" foods.	S.M.17

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
Natural foods refer to foods which contain no man-made chemical additives. Organic foods contain no man-made chemical additives and are grown without the use of man-made fertilizer. Garbage, compost, and manure are used in place of chemical fertilizer. Organic foods are not treated with chemicals to prevent the growth of weeds or to kill insects.	Explain the meaning of the terms natural and organic foods. Direct students in completing the health food comparison form. Examine food labels to determine the additives in the food. Explain and describe what food additives are and the role of the FDA in regulating the use of additives.	
The nutrient value of natural or organic foods is similar to that of foods produced and processed with modern agricultural methods and food processing procedures. Natural and organic foods are frequently sold through stores and markets which are publicized as "health food" stores. This title may be misleading because all food is health producing. No one food is more health producing than another. Soil depletion reduces the quantity of the crops grown, not the quality. Health foods are not harmful to eat. They sometimes look better and taste better than other foods. They are often grown and sold locally and are, therefore, often fresher.	**Pre-Teaching:** Secure copies of "How Nutritious Are Fast-food Meals," **Consumer Repórts,** May, 1975. Assemble prices for raw food required to prepare a fast-food meal. Transition: Guide students in determining the cost and the nutrient and caloric value of a similar meal prepared from purchased ingredients. Have students read the report on fast-food meals and compare findings.	S.M.20
Price of food is not a reliable measure or indicator of the nutritional or caloric value of foods. The price of a given food product is affected by a variety of factors: Costs of raw materials used in producing the product affect the cost of the final product. Expensive raw materials increase the cost of producing the product but may not change the nutritional value or other qualities.	**Pre-Teaching:** Arrange for a study trip to a local grocery store. Seek the co-operation of a local grocery store owner or manager in providing an actual shopping experience for the students. Students would plan a shoping list and then select the foods which they have listed from the grocery shelves. The foods would be processed through the checkout line and students would receive the tape. The grocer might then talk with the class regarding factors which influence the cost of food products, added costs, and best buys from the grocer's point of view. Following the study trip, students may summarize factors which affect the cost of foods and identify practices which are useful in counteracting increasing food costs.	S.M.19

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
Increasing the number of processing stages which the food goes through may increase the cost but may not increase the nutritional value of the food.		
Expensive and elaborate packing increases the cost of the product but does not imporve the quality or nutritional value.		
New products (5,000 a year) add to the cost of existing foods.		
Labor costs will affect the final price or cost of the products.		
Transportation costs will affect the final cost of the product.		
Merchandising practices affect the cost of the product.		
Merchandising practices affect the cost of the product.		
The greater the amount of advertising and promotion, the more likely the cost will rise.		
The type of retail store in which one shops affects the amount of money one pays for food.		
The more services the store offers customers, the greater the chances that food costs will be increased to cover the cost of services.		
Careers related to nutrition which require varying amounts and types of training are available.	**Pre-Teaching** Arrange for a person employed in the field of nutrition to talk with the class about the responsibilities and satisfactions associated with her or his occupation.	
Food processing technicians assist food scientists in improving existing foods products, creating new food items, developing and improving food processes related to production.	Arrange a bulletin board display of careers which are related to the field of nutrition.	S.M.18
Many carreers related to nutrition involve planning and providing for adequate nutrition for other people. Carreers of	Encourage students to collect newspaper and magazine articles, help wanted advertisements and other materials which indicate the number and types of careers related to nutrition.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
his type include menu planner, community nutritionist, public health nutritionist, school lunch consultant, diet conselor, hospital dietitian.		

S. M. 1 HOW DO YOU BREAK THE FAST?

A long period of time without food is known as a fast. The word breakfast reminds us that the first food eaten after a period of no food breaks the fast.

According to this, breakfast for one person might be at 7 a.m. and for another at 11 a.m. "Break-the-fast" foods might include pizza, a peanut butter sandwich, or scrambled eggs and toast.

List the foods which you might choose to eat to "break the fast."

Day 1		Day 2		Day 3	
Food	Amount	Food	Amount	Food	Amount

S. M. 2 OPINIONS ABOUT FOOD

Procedure: Prepare a series of statements which reflect opposing opinions regarding a topic under discussion. At the beginning of the activity, students are asked to stand in a position which indicates neutrality. As each set of statements is read, they move from the neutral position to one which represents agreement with one or the other of the statements. If agreement is only partial, the new position will be closer to the neutral point.

Example:

Candy and sweets are harmful to tooth enamel.		Candy and sweets are not harmful to tooth enamel.
X	X	X
Agree with this statement	Neutral Position	Agree with this statement

Statements:

The foods I eat between meals do not affect my health.	The foods I eat between meals affect my health.
No one in Minnesota is poorly nourished.	Some people in Minnesota may be poorly nourished.
My food likes and dislikes are a guide to eating foods that will keep me healthy.	My food likes and dislikes may not be a guide to food choices that will keep me healthy.
What I choose to eat only affects me.	My food choices affect other people.
I know all I need to know about what foods do in the body.	I can learn more about what foods do in the body.
If I take vitamins, I don't need to be concerned about the other foods I eat.	Vitamin pills don't insure good health.
Only little children need to drink milk.	Everyone needs milk.

S. M. 3 FOODS, NUTRIENTS, AND PERSON POWER

Foods contain chemical substances that the body uses for GO, GROW, and GLOW POWER.

The substances which foods contain that the body uses are called NUTRIENTS.

When food is eaten, the body breaks the food into NUTRIENTS.

The process of breaking food into NUTRIENTS goes on in the mouth, stomach, and intestines.

The NUTRIENTS are absorbed by the blood in the small intestine and carried to the cells in the body.

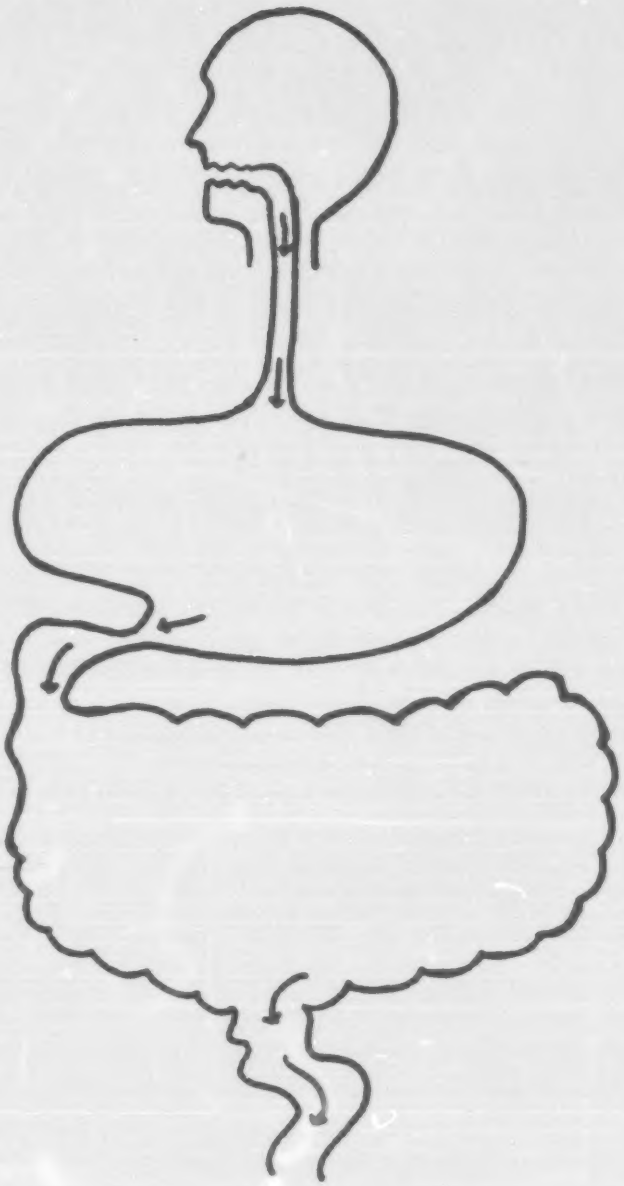
The body cells use some of the NUTRIENTS for energy—GO POWER. Other NUTRIENTS are used for growth—GROW POWER. Other NUTRIENTS are necessary for good health—GLOW POWER.

Carbohydrates, protein, fat, vitamins and minerals are NUTRIENTS found in foods which the body uses.

These NUTRIENTS are found in different foods.

An undersupply or lack of essential NUTRIENTS limits or reduces the body's functioning.

An oversupply of some NUTRIENTS may also limit the body's functioning.



S. M. 4 NUTRIENTS: SUBSTANCES IN FOODS

Food	Amt.	Protein	Carbohydrate	Fat	Minerals: Calcium	Iron	Phosphorus	Vitamins: A	C	Thiamine (B_1)	Riboflavin (B_2)	Niacin	D

Total Nutrients _____

Which nutrients did your breakfast meal provide in largest amounts?

Which nutrients did your breakfast meal fail to provide?

S. M. 4 NUTRIENTS: SUBSTANCES IN FOODS (cont'd)

Determine the precent of the following nutrients which the breakfast meal provided by dividing the nutrient total by the Recommended Daily Allowance figure given below.

Example:

Food	Amt.	Protein
Bran flakes with raisins	1 cup	4 gm.
2% milk	½ cup	5 gm.
Orange juice	6 oz.	.8 gm.
Total		9.8 gm.

Protein - RDA 44 gm.

$$44 \overline{)\,9.8} = .22 = 22\%\ \text{RDA}$$

88
100
88
12

Protein - RDA female and male, 11-14	44 gm.	Iron - RDA female and male, 11-14	18 mg.
Calcium - RDA female and male, 11-14	1200 mg.	Vitamin C - RDA female and male, 11-14	45 mg.
Thiamine - RDA female and male, 11-14	1.4 mg.	Riboflavin - RDA female and male 11-14	1.6 mg.
Niacin - RDA female, 11-14 male, 11-14	16 mg. 18 mg.	Vitamin A - RDA female, 11-14 male, 11-14	4000 IU 5000 IU

S. M. 5 HOW DO YOU MEASURE UP? - BOYS

	Protein	Calcium	Iron	Vitamin A	Vitamin C
100% RDA	44 gm.	1200 mg.	18 gm.	5000 IU	45 mg.
75% RDA	33 gm.	800 mg.	14 gm.	3750 IU	33 mg.
50% RDA	22 gm.	600 mg.	10 gm.	2500 IU	22 mg.
25% RDA	11 gm.	300 mg.	5 gm.	1350 IU	11 mg.
10% RDA	5 gm.	120 mg.	1.8 gm.	500 IU	4.5 mg.
0					

S. M. 5 HOW DO YOU MEASURE UP? - BOYS (cont'd)

	Vitamin B_1	Vitamin B_2	Niacin	Vitamin D
100% RDA	1.4 mg.	1.6 mg.	18 mg.	400 IU
75% RDA	1.0 mg.	1.3 mg.	14 mg.	300 IU
50% RDA	0.7 mg.	0.8 mg.	9 mg.	200 IU
25% RDA	0.3 mg.	0.4 mg.	5 mg.	100 IU
10% RDA	0.14 mg.	0.16 mg.	1.8 mg.	40 IU
0				

S. M. 5 HOW DO YOU MEASURE UP? - GIRLS

	Protein	Calcium	Iron	Vitamin A	Vitamin C
100% RDA	44 gm.	1200 mg.	18 gm.	4000 IU	45 mg.
75% RDA	33 gm.	800 mg.	14 gm.	3000 IU	33 mg.
50% RDA	22 gm.	600 mg.	10 gm.	2000 IU	22 mg.
25% RDA	11 gm.	300 mg.	5 gm.	1000 IU	11 mg.
10% RDA	5 gm.	120 mg.	1.8 gm.	400 IU	4.5 mg.

	Vitamin B_1	Vitamin B_2	Niacin	Vitamin D
100 % RDA	1.4 mg.	1.6 mg.	16 mg.	400 IU
75% RDA	1.0 mg.	1.3 mg.	12 mg.	300 IU
50% RDA	0.7 mg.	0.8 mg.	8 mg.	200 IU
25% RDA	0.3 mg.	0.4 mg.	4 mg.	100 IU
10% RDA	0.14 mg.	0.16 mg.	1.6 mg.	40 IU
0				

S. M. 6 CONSIDER THE CHOICES: BEVERAGES
Small Group Study Form

Product Name	Package Size (oz. or gm.)	Cost per Package

Ingredients Added (if any)	Amount of Added Ingredients	Cost of Added Ingredients

Total quantity of prepared beverage (ounces or grams) _____

Cost per serving _____

Calories per serving _____

Prepare graph of percentage of RDA for the major nutrients. A form similar to the How Do You Measure Up? charts may be used.

S. M. 7 BEVERAGE STUDY: MASTER CHART

Product Name	Cost per Serving	Calories per Serving	Nutrient Graphs Information

S. M. 8 COMPARISON OF NUTRITION IN MILK PRODUCTS
(Per Average 8-Ounce Serving)

	Protein (Grams)	Fat (Grams)	Energy (Calories)	Calcium (Milligrams)	Phosphorus (Milligrams)	Iron (Milligrams)	Water (Percent)
MILK							
Whole milk	7.9	7.9	146.9	266.7	210.2	.1	87.4
Skim milk	8.1	.25	81.4	273.5	214.7	.1	90.5
2% (nonfat solids)	9.5	4.5	133.3	323.2	253.1	.1	87.0
Nonfat dry milk (reconstituted)	8.1	Trace	81.4	289.6	225.1	.1	92.5
Chocolate drink	7.5	5.2	171.8	244.1	205.7	.4	82.8
Chocolate milk	7.7	7.7	192.1	250.9	212.4	.4	81.5
Buttermilk	8.1	.2	81.4	273.5	214.7	.1	90.5
Evaporated milk	15.8	17.9	309.6	569.5	463.3	.2	73.8

Source: Composition of Foods, Agricultural Handbook No. 8, Agricultural Research Service, USDA

The recommended daily allowances for calcium are unobtainable from natural foods unless milk or some other dairy product is being consumed.

S. M. 9 CHOOSE FOOD TO FIT YOUR ACTIVITIES

Limit your calories to the amount you need, remembering that unused calories must be stored as fat. The following table shows that the rate of energy or calories used depends upon the type of activity that you are engaged in. Because some of you work harder when you walk or play than others do, and some of you are bigger than others, and some are using more energy for growing, each of you will vary a little in the amount of energy you need for the same activity.

CALORIES	FOOD	MINUTES OF ACTIVITY				
		Rest or Recline	Walk	Ride a Bike	Swim	Run
101	Apple, large	78	19	12	9	5
78	Slice of bread and butter	60	15	10	7	4
356	Cake, 1/12 of two-layer	274	68	43	32	18
106	Carbonated beverage 8 oz. glass	82	20	13	9	5
42	Carrot, large, raw	32	8	5	4	2
166	Milk, 8 oz. glass	128	32	20	15	9
421	Milk shake	324	81	51	38	22
68	Orange, medium	52	13	8	6	4
120	Orange juice 8 oz. glass	92	23	15	11	6
108	Potato chips 10 chips, 2/3 oz.	83	21	13	10	6
396	Spaghetti and sauce 1½ cups	305	76	48	35	20
235	Steak, T-bone	181	45	29	21	12
350	Hamburger sandwich	269	67	43	31	18

All of these foods have nutrients such as proteins, minerals, vitamins, fat and carbohydrates. When used together by the body, they produce the energy we know as calories.

S. M. 10 SNACKS: CHOICE OR CHANCE?

Directions: Read the description of the food choice situation to the person being interviewed. In column I, list the food or foods chosen. In column II, list the reasons for choosing the particular foods.

	Column I	Column II
If you are going to have a snack after school today, what will you choose?		

Directions: Read the description of the food choice situation to the person being interviewed. In column I, list the food or foods chosen. In column II, list the reasons for choosing the particular foods.

	Column I	Column II
If you raid the refrigerator, freezer, or cupboards, what food do you choose?		

Directions: Read the description of the food choice situation to the person being interviewed. In column I, list the food or foods chosen. In column II, list the reasons for choosing the particular foods.

	Column I	Column II
If your favorite TV program is on and a hunger pang strikes during a commercial, what will you eat?		

Directions: Read the description of the food choice situation to the person being interviewed. In column I, list the food or foods chosen. In column II, list the reasons for choosing the particular foods.

	Column I	Column II
When everyone seems to be having a snack during intermission at the movies, what do you choose?		

S. M. 11 LABELS TELL THE STORY

Today's labels on packages attract attention and give information about the contents in large, easy-to-read type. They have been developed by manufacturers over the years to meet consumer desires and legislative requirements.

Labels introduce the consumer to the packaged products on grocery shelves. They describe the advantages and qualities of the product in easy-to-understand words and often show the contents in picture.

LABELS AND THE LAW: The food industry, working under government laws and regulations, has established standards to safeguard public health. These standards assure you that the food you eat is safe and the statements about it are true.

All packaged food must be wholesome and must be packed in a clean plant under sanitary conditions. The Food, Drugs, and Cosmetics Law requires that every package must prominently and conspicuously display this information on its label:

Legal name of the product
Name and address of the manufacturer, packer, or distributor
Net quantity of contents
Statements of dietary properties, if special dietary uses are recommended
Statements of any artificial coloring, flavoring, or chemical preservatives (Only butter, cheese, and ice cream products need not mention artificial coloring.)
Statement of ingredients listed by their common names in order of amount (The ingredients weighing most must be mentioned first and followed by all others in decreasing proportion. Exceptions are such products as mayonnaise, jellies, macaroni, etc. Because the government has set a standard for these, their ingredients need not be stated on the label.)
Certain canned fruits and vegetables must also show this information on their labels:
- Variety (for example, white or yellow corn)
- Style of pack (whether whole, halves, diced, etc.)
- Packing medium (such as sugar, syrup, water)

If a product is below basic standard of quality or below standards of fill of container set by the Food and Drug Administration, this must be stated in prescribed legal manner.

In 1975, the Food and Drug Administration will require labeling for food products to which food nutrients have been added or for foods about which a claim related to nutrition has been made. The labeling will indicate:
Size of serving
Grams of protein, carbohydrates, and fat in a serving
Percent of Recommended Daily Allowance (RDA) of minerals, vitamins, and proteins supplied by a serving

S. M. 12 SHOPPER'S CARD

Item	Name of Item Selected	Number	Price	Reasons for Choice
Group I				
Group II				
Group III				
Group IV				

S.M. 13 NUTRIENTS PER SERVING

Directions: Return to the display of the particular food item which the group is to investigate. Examine the label of the item you selected as the best buy. Answer the following questions.

What is the cost per unit (ounce or gram) of the food?

What is the cost per serving of the food?

List the nutrients one serving of the food provides, the percentage of the RDA, and the caloric value.

Nutrients	Percentage of RDA	Calories

Compare your findings with others in the group. Is your choice the best buy? Why?

S. M. 14 BRAND NAME STUDY

Item Tested	Brand Name	Preference Rating	Price	Ounces or Grams	Cost per Unit	Cost per Serving
A						
B						
C						
D						
E						

S. M. 15 ADVERTISEMENTS: DO THEY HELP CONSUMERS?

Directions: Place or write the advertisement which you selected in the space below.

Study the advertisement carefully and answer the following questions.

1. Does the advertisement attract your attention?

2. What is the advertisement saying about the food?

3. What does the advertisement say the food will do for you?

4. Can the food do this for you? (Is it a realistic claim?)

5. What can you do to determine whether the claim is true or false?

6. Who is responsible for the advertisement?

S. M. 16 FOODS AND NUTRITION: FACT OR FALLACY?

The following statements are expressions of opinions which many people have about nutrition. Read each statement carefully before indicating your belief.

Circle "T" if you consider the statement a fact.

Circle "F" if you believe the statement is a fallacy.

T F 1. A person who eats enough food will always stay healthy.

T F 2. Milk is a perfect food.

T F 3. Fish is better brain food than beef.

T F 4. Milk is fattening.

T F 5. In general, the darker the color of the food, the higher the starch content.

T F 6. Celery requires more energy to digest than it provides.

T F 7. Toast has fewer calories than bread.

T F 8. Brown-shelled eggs have higher nutritive value than white.

T F 9. Water is fattening.

T F 10. Processed foods cause cancer.

S. M. 17 COMPARING A "HEALTH FOOD AND A SIMILAR FOOD FOUND IN A SUPERMARKET

Using the information on the label of the food packages, fill in the chart with information that could help you decide which food would be best to buy.

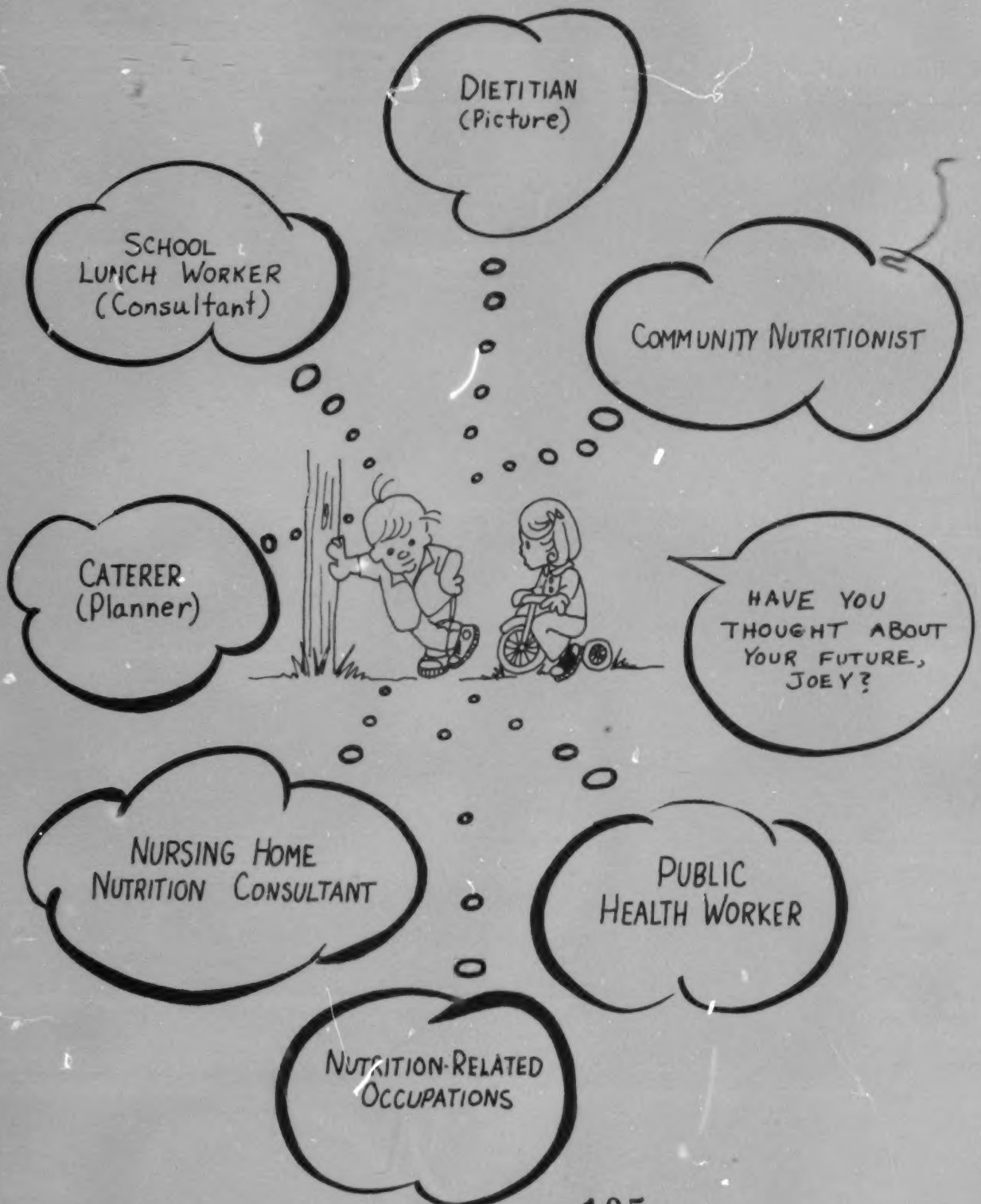
	"Health Food"	Similar Food
Name of the food		
Ingredients as they are listed on the packages, including vitamins and minerals added to the food		
Cost		
Size of package in ounces		

1. Which source of food is more expensive per ounce?

2. Does the health food package state any claims for its being better than another food? If so, how is it better? Why?

3. What ingredients are different in the two foods? Define, using a dictionary, those ingredients which are different and compare the ingredients again.

S. M. 18 BULLETIN BOARD IDEA — CAREERS IN NUTRITION



S. M. 19 STORE COMPARISON STUDY

STORE (size)	SERVICES	LOCATION	COST OF CERTAIN FOODS Take any three foods. Compare the same brand and size for cost only. Brand Size Cost
STORE A	1 2 3 4 5 6 7 8 9		
STORE B	1 2 3 4 5 6 7 8 9		
STORE C	1 2 3 4 5 6 7 8 9		

S. M. 20

REFERENCES

Books:

Eckert, Sidney W. The Consumer's World Resource. New York: McGraw Hill Book Company, 1974.

Labuze, T. P. Food for Thought: Fact, Not Fad. Easton, PA: Mack Printing Company, 1974.

Margolius, Sidney. The Great American Food Hoax. New York: Walker and Company, 1971.

McDermott, Irene, and others. Food for Modern Living. Philadelphia: J. B. Lippincott and Company, 1967.

Peck, Leilani Brinkley, and others. Focus on Food. New York: Webster Division, McGraw Hill Book Company, 1974.

Poalucci, Beatrice, and others. Personal Perspectives. New York: McGraw Hill Book Company, 1973.

Pamphlets:

"Nutritive Value of Foods," Home and Garden Bulletin #72. United States Department of Agriculture, Washington, D.C.

"Nutrition Labeling - Terms You Should Know"
"The New Look in Food Labels"
"Food Is More Than Just Something To Eat"
"Metric Measures on Nutrition Lables"
"Food Additives"
"The Food Fad Boom"
"Food and Your Weight"
Consumer Information Center, Public Documents Distribution Center, Pueblo, Colorado 81009.

Periodicals:

Dows, Susan, "Economical Meal Planning," What's New in Home Economics, April, 1975.

"How Nutritious Are Fast-Food Meals?" Consumer Reports, May 1975.

S. M. 20 REFERENCES (cont'd)

Visuals:

Foods: Fads and Facts. 17 min. Color. Perennial Education, Inc.

Food for Life. 21½ min. Color.
The film compares the food practices and problems of four teenagers—two American, one South American, and one Asian. All are poorly nourished for different reasons.
Perennial Education, Inc., 1825 Willow Road, Northfield Illinois 60093.

The Health Fraud Racket. 28 min. Color. National Medical Audiovisual Center, Annex, Station K, Atlanta, Georgia 30334.

Read the Label; Set a Better Table. 14 min. Color. Blanche Erkel, FDA Consumer Affairs, 240 Hennepin Avenue, Minneapolis, MN 55401.

Guide To Good Eating poster and mini posters. Comparison Cards. Food Models. National Dairy Council, 11 North Canal Street, Chicago, Illinois.

UNIT TITLE: *FOODS WITH TASTE APPEAL*

UNIT FOCUS: The unit provides a introduction to learnings which are basic to the preparation of foods that are nutritious, and appealing to the appetite. Demonstrations, films and illustrated presentations are used to help students develop learnings related to nutrition, sanitation, personal hygiene, safety, standardized recipes, food preparation equipment and principles for the preparation of selected foods. Laboratory experiences are suggested which will provide direct experience with the various learnings.

RATIONALE: Individuals throughout their lifetime in various settings will find it useful to be able to perform some or all of the tasks associated with the preparation of food. Instruction in this unit is designed to assist students in the development of knowledge and skills which will enable them to perform a number of tasks basic to the preparation of food. Because one of the major reasons for eating food is to provide nutrients which will support and maintain health attention is directed to the nutrient contribution of foods prepared and to preparation principles which will retain the nutrients which foods supply.

INSTRUCTIONAL OBJECTIVES:

Comprehension of the concept of cooperation
Willingness to work in a cooperative manner
Comprehension of the concept of safety
Comprehension of the safety procedures related to food preparation
Willingness to employ procedures related to food preparation
Comprehension of the effects of food handling procedures on the wholesomeness of the foods prepared
Willingness to employ sanitary food handling procedures
Comprehension of the concept of standardized recipes
Ability to translate standardized recipes into food preparation procedures
Comprehension of the effects of variation in food preparation procedures on resulting products
Comprehension of the meaning of selected food preparation terms and symbols
Knowledge of the function of selected food preparation equipment
Knowledge of the procedures for safe and effective use of selected food preparation equipment
Comprehension of the process of management
Willingness to employ the process of management in the preparation of foods
Knowledge of the functions of essestial nutrients
Knowledge of food sources of essential nutrients
Comprehension of selected food preparation principles

EDUCATIONAL BACKGROUND: None required. Level I

SUGGESTED TIME: 3-4 weeks

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	Pre-Teaching: Review Notes to the Teacher. Prepare Examples and Non-examples of Cooperative Behavior.	S.M.1 S.M.2
	Transition: Many of the experience which the class will have will involve working with several other classmates. Before choices are made regarding the other students with whom you may like to work, let's read some paragraphs which may help us in choosing group members.	
	Give students copies of Examples and Non-examples of Cooperative Behavior.	
	Continue:	
	Some of the paragraphs are marked A and some are marked B.	
Cooperation is working with and relating to others for the purpose of accomplishing a common goal. The benefits which result from working together are greater than the disadvantages which might result or be experienced.	It is our job to discover why the A's are marked A and how they are alike and different from the paragraphs marked B.	
	As we try to determine why the A's are alike it may be helpful to think about the following questions:	
	What are the different people in the groups doing?	
	What seems to be the reason for their action?	
	What happens as a result of the action?	
	How do they feel about the results?	
	The pupils and teacher may take turns reading the paragraphs, beginning with two marked A-Example.	
A cooperative person is one who is willing to share responsibilities and duties with others.	Question: What do you think might be the same in the two situations which we read?	
A cooperative person is willing to offer ideas and suggestions regarding ways of working to achieving goals.	Record responses. As reasons are given be certain that they are true for all of the excerpts labeled A that have been read.	
A cooperative person is willing to listen to the suggestions of others.	Read an excerpt labeled B.	
A cooperative person carries out the tasks he/she has agreed to complete.	Question: How is this different than the paragraph marked A?	
A cooperative person may offer to assist others.	Continue to read the materials. Question students to bring out all the ideas which describe cooperative behavior.	
A cooperative person does not try to assume another person's responsibilities.	Guide the students through questioning and clarifying comments to discover the meaning of cooperation.	
	When students have identified most of the characteristics of cooperation, ask:	
	Will someone summarize what you think the A's tell us?	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	Continue to summarize until a clear idea has been formulated. What could this idea be called? If the students are unable to identify the name of the concept, the teacher may supply the name cooperation, or team work. Continue: Let's imagine that as a class experience we plan to prepare this recipe. (Show or describe a recipe of your choice.) How is cooperation or team work involved? Guide students in the identification of situations in which cooperation might be displayed. Groups of students and the teacher may role play different ways of accomplishing the tasks. Other students may observe and identify characteristics which made the behavior cooperative or uncooperative. Explain procedures for completion of the sociogram. (Refer to S.M. 12 - Understanding and Enjoying Children.) Have students complete choices. Prepare sociogram as a basis for organizing laboratory groups.	
Safety is an attitude of sincere concern for the well-being of self and others and the protection of equipment. Safety is a willingness to accept rules and procedures which are designed to protect and keep persons from harm. Safety in working with food preparation involves the selection of tools and equipment which was made to do the particular task or work safely. Safety in working with food preparation involves using equipment in the way it was designed to be used. Failure to select and use equipment in the manner intended may result in damage to the equipment and harm to individuals.	**Pre-Teaching:** Order filmstrip **A Recipe for Safety.** Recall several accidents which have occurred in the preparation of food either in the home, in the laboratory setting or in a commercial food establishment. Be prepared to describe these incidents to students. Transition: As you listen to the incidents I describe try to pick out two ideas. What happened and why it happened. Describe accidents. Record student responses on chalkboard under the appropriate headings. Students may relate other experiences and reasons. Encourage students to summarize the major reasons for accidents. What appears to be similar in all of the situations that resulted in kitchen accidents? Ask: How are accident prone kitchen workers different from safe kitchen workers?	S.M.16

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
To prevent burns when handling objects which are hot: use dry pot holders prepare places for resting hot objects before removing them from the range or oven turn the handles of pots and pans toward the center of the range but not over a burner	Prepare film for viewing. As you view the film list the procedures a safe worker would follow. OR Provide students with a list of specific rules and individually or in pairs have them identify the reason for the procedure to other class members.	
When taking a lid from a hot pan tilt the lid up and away from you to allow the steam to escape.	**Note to Teacher:** Specific procedures related to equipment and use of equipment in food preparation is probably more meaningful to students taught as integral part of the particular food preparation technique, i.e., use of knife for peeling when a food is to be prepared that requires peeling.	
To avoid electrical shocks when working with electrical appliances: use the plug, not the cord to connect and disconnect the appliance dry hands before touching electrical equipment, outlets or plugs	The following experiences can be used at any time during the unit to refresh and recall safety procedures. Plan a contest among kitchen units to determine who can list the most kitchen hazards. When students have finished listing possible hazards, record on chalkboard and have students identify prevention procedures. AND/OR Teacher sets up hazards in two kitchen laboratory units and divides the class into two teams. Each team tries to record the most kitchen hazards in the given period of time, approximately 10 minutes. Teacher records students' suggestions on chalkboard or overhead as to prevention of such hazards.	
If something must be retrieved from a toaster, unplug the toaster before making an attempt to get the item out.		
To prevent cutting oneself with knives and other sharp utensils: grasp the object by the handle cut or chop foods while resting on a cutting board rather than in the hand	On any day of preparation the teacher or assigned student might act as a safety officer and visit each group to give a safety check. Safe and unsafe practices can be noted. (Not to be used in grading.)	
	Pre-Teaching: Order the filmstrip and record **Unwanted Four.**	S.M.16
Microorganism which are responsible for decay of food and production of toxins (substances dangerous to health) are widely distributed.	Transition: Who is in the unit you will be working in? (Students will probably give the names of the other students they'll be working with.) What will you be working with to make good tasting food? (name stove, refrigerator, etc.)	
Places where microorganisms can be found are: hands mouth nose & throat discharges hair fingernails things which appear clean, but may not be clean.	Is there anything else? Although we can not see them, there may be invisible residents in the kitchen waiting for you to begin work. Watch and listen to the film to find out who are the invisible residents. Are they friends or enemies; View film.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
Food carried illnesses usually result from the introduction of causative organisms into the food either through the handling of food, utensils and tableware, or contamination of food or serving utensils and tableware through oral or nasal discharge. Moisture, food and warm temperatures are conditions which help microorganisms grow and produce spoilage and toxins. To safeguard against the spoilage of food and/or production of toxins by microorganisms, several actions may be taken: prevent the microorganism from getting into the food prevent microorganisms from surviving in the area of food preparation, dish and utensil storage and serving distroy microorganisms which may have been introduced into foods. Cleanliness of the person who prepares food is basic to preventing microorganism from contaminating food. Washing hands thoroughly with soap and water will destroy microorganisms present. Keep hands and fingers away from hair, face, nose and mouth where microorganisms are present and can be easily transferred to food. Keep hands and fingers out of food whenever possible. This minimized contact of possible germ surfaces with foods. Do not eat or chew gum in the food preparation area. It could lead to unsanitary food handling. Do not cough, sneeze or clear mouth or nose near food or dishes. Use disposable tissues	Following the film direct each unit of students in identifying 5 "bright ideas" for personal cleanliness that would keep microorganisms from getting into foods being prepared and served. Bright ideas can be recorded on light bulb shaped colored paper and displayed around the room or compiled on a large light bulb shaped chart and displayed on bulletin board. As student teams present ideas encourage them to relate the rule to the reasons. Ask: Does your bright idea prevent germs from getting into food or on dishes; Does your bright idea destroy germs which might be on surfaces which will come in contact with food? If students do not suggest all of the basic procedures, the teacher might suggest the procedure and students provide the reason. i.e., wear hair tied back or in some way control hair The teacher may want to demonstrate washing hands and controlling hair.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
to cover mouth to prevent germs from reaching foods.	**Pre-Teaching:** Collect dishwashing equipment and supplies. Prepare transparency Conditions Friendly and Unfriendly to Microorganisms.	S.M.3
Microorganisms are present in the food preparation area and are transferred from individuals and surfaces to the dishes used in preparing and serving food.	Soil several dishes or collect dishes that have not been washed with care. Some food should remain on the dish or utensil.	
Friendly conditions (foods, moisture and warm temperatures) are present on soiled dishes and utensils used in food preparation.	Transition: Display soiled dishes. Direct students to respond to several statements about dishes and dishwashing with the following code.	
	If you agree with the statement I make wave your hand over your head.	
If food conditions remain unchanged microorganisms will miltiply and may produce harmful toxins.	If you disagree with the statement fold your arms.	
	I would rather wash dishes than wipe them.	
Washing dishes and utensils can destroy microorganisms and change the friendly environment to an unfriendly environment.	I would enjoy eating from this dish. (Hold up soiled dish.)	
	I can do dishes quickly and they will be clean.	
Microoganisms find temperatures of 60 degrees to 120 degrees ideal for growth.	This is the way dishes look when I have washed them. (Hold up another dish.)	
	I do dishes in my home under protest.	
Temperatures of 140 degrees to 165 degrees will help to eliminate microorganisms.	I would be happy if I never had to do another dish.	
	Too much fuss is made over clean dishes, clean stoves, clean pots and pans.	
Microorganisms are destroyed by the chemicals found in soaps, dish detergents, and scouring powders.	Summarize students response to statements in a few sentences.	
	Continue: What does dishwashing have to do with microorganisms?	
	Accept students responses.	
	Reveal transparency and explain the conditions which microorganisms find friendly and unfriendly.	
	Point out relationship to dishwashing and general sanitation in food preparation.	
Dishwashing is a part of food preparation and service. Everyone enjoys food more when it is prepared in clean surroundings and by clean methods.	Transition: Display dishwashing equipment.	
	Continue: Look carefully at this object. Think about the things you know about its use and care. When I call on you tell the class one of your ideas.	
Equipment used in cleaning dishes includes: sink and or dishpans for washing and rinsing dishcloth for removing	Do not tell or use the name of the object.	
	Record responses on chalkboard or overhead.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
food particles, soap or detergent for better cleaning and destroying bacteria dishdrainer permits air drying of dishes and orderly stacking plastic or nylon scrubber, cleans pans which are teflon lined or which might be marred by other scouring pads steel scouring pads to clean tough surfaces cleanser, helps with scouring chores and work surfaces	Ask: What other information do you have about the object? Record responses on chalkboard or overhead. AND/OR Pupils each make a list of what he/she considers to be essential dishwashing equipment and tell why they think it is essential.	
The arrangement of equipment to be used in washing dishes affects efficiency with which the task can be completed.	Illustrate the arrangement of equipment for smooth flow of work in several of the unit kitchens.	
	Demonstrate procedure for washing dishes.	
	As an assignment students may diagram the dishwashing arrangement in their own home. Trace the flow of work and try the recommended procedure in their home.	
	(Note: This section may be integrated into each laboratory lesson. The teacher or students might gather information regarding the procedures that are being used in any lab lesson. Charting of procedures may be done by student observer.)	
Equipment which is arranged to permit a flow of work in one direction is likely to save time and motions. right to left for right handed workers left to right for left handed workers	Transition: Teacher presents short 10-15 minute demonstration on the various features of automatic dishwasher, if available, and explain.	
	Pupils demonstrate correct and incorrect loading of automatic dishwasher, if available, and explain.	
Equipment which is arranged to permit the flow of clean dishes to move toward the storage area is likely to save time and motions.	Teacher shows items made of different kinds of materials and explains the effect of washing each in an automatic dishwasher.	S.M.4
Preparation for dishwashing before the actual washing begins may result in the tasks being completed more quickly. Preparation includes: soaking cooking dishes to loosen food storing left over foods scraping dishes		
Washing all items which are the same type at one time will reduce breakage and may add to efficiency. glassware flatwear, silver china, tablewear pots and pans		
Rinsing items will remove deter-		

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
gents and allow open air drying. Refer to content in unit on dishwashing by hand related to destroying bacteria and an environment which would be friendly to bacteria. Certain materials cannot be washed in the automatic dishwasher because: color may be damaged or destroyed shape of the object may be affected. The standarized recipe is a tool to be used in the preparation of foods which are appealing in taste and appearance. Experimentation and testing have been used to develop standardized recipes. As recipes were developed, workers who did the testing agreed to use particular kinds of measuring equipment and particular ways of measuring or rules. Through testing, the proportions of ingredients have been adjusted and methods of combining ingredients developed to insure that the same kind of qualities would be produced each time the recipe is used correctly. The standardized recipe provides information related to: kind and amount of ingredients by measure step by step instructions for combining ingredients size of utensil for baking or cooking temperature and time for cooking or baking size and amount of portions per recipe	**Pre-Teaching:** Prepare transparency or copies of standardized and non-standardized family sized recipes. (S.M.2, Metric Mind) Transition: Show standardized and non-standardized recipes. Ask: How are they similar? How are they different? Explain the processes used in the development of standardized recipes. Give sample of standardized recipes to students and have them identify the kinds of information included in the recipe. Record major categories of information on the chalkboard. Ask: Is it possible to use non-standardized recipes successfully? Why? Why not? **Pre-Teaching:** Select a recipe for a food product which requires the measurement of flour, shortening, brown and granulated sugars, liquids and other dry ingredients of less than ¼ cup. Prepare copies of Enjoying Outdoor Cookery.	S.M.20, Measuring Accurately

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
Food preparation like many other specialized kinds of work has a language of its own and equipment which is designed to do the work.	Prepare a large visual of recipes with abbreviations for the units of measurement. T or tbsp. for tablespoon.	
	Prepare a copy of Abbreviations in Cookery.	S.M.5
Workers who are successful in food preparation know the language and the special equipment which is designed to do the work.	Assemble ingredients and equipment required to prepare food product.	
	Transition: A product which is like that described in the recipe is more likely to result if the procedures described in the recipe are followed.	
The standardized measuring equipment used in preparation of family and individual sized recipes include: dry ingredient measuring cups liquid ingredient measuring cups measuring spoons for measuring all ingredients of less than 1/8 cup	Demonstrate procedures for preparing a food product using a standardized recipe. Demonstrate measuring techniques, explaining why the technique is used as well as how it is done AND/OR Demonstrate differences in amounts of ingredients when standard and nonstandard utensils are used. Example: tablespoon measure from flatware and a measuring spoon. AND/OR Illustrate differences in amount of flour in a product when comparing sifting and non-sifting or packing and non-packing.	
Symbols or abbreviations used in recipes give the food preparer valuable information. Abbreviations are used to indicate the measuring tools which are to be used or ingredients.	Refer to cookery abbreviations which are part of the recipe. Explain meaning of abbreviation. Students may complete abbreviations form at close of demonstration. Note: The section related to increasing and decreasing a recipe may be more meaningful to students when they have had some actual food preparation experience. It may be advisable to teach this section near the close of the unit. Adoption of the metric system of measurement and metric measuring tools will make this section outdated.	
Occasions may arise when it will be necessary to increase or decrease the size of a recipe. Measurement equivalents facilitate change from one measurement to another when increasing or decreasing recipe size.	**Pre-Teaching:** Prepare a ditto of measurement equivalents and a recipe to double and divide in half and thirds. Transition: Students are given ditto of measurement equivalents. Students and teacher record each one on chalkboard or overhead and show the actual equipment. AND/OR Students may play card game of measurement equivalents as reinforcement. (Dingbat) This game teaches recipe measurement equivalents. Example: ¼ cup = 4 Tbsp. It is adapted from the Old Maid card game. How to the make the game: Buy an inexpensive deck of children's cards or flash	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL

cards containing at least 39 cards. Place the 39 cards face down on the adhesive side of self-adhesive plastic, cut them out. With a felt pen print one of the following on each card:

3 tsp.	16 T.	2 c.	2 pt.
4 T.	51/3 T.	8 T.	12 T.
1 cup	1 c.	2 c.	4 c.
4 qts.	4 pecks	3 tsp.	16 T.
8 T.	4 qts.	8 qts.	1 T.
1 c.	1 pt.	1 qt.	¼ c.
½ pt.	1 qt.	1 pt.	1 gal.
1/3 c.	½ c.	3/4 c.	8 fl. oz.
1 peck	1 bushel	1 T.	1 c.
½ c.	1 gal.	Dingbat	

The deck now contains 19 pairs and 1 Dingbat card.

How to play the game:
Two to six may play. The object of the game is to find equivalent (not matching) pairs of cards and discard them. i.e., 3 tsp. - 1 T.
1. Shuffle cards and deal until all are distributed.
2. Players look at cards and place equivalents in center of table, face up, in a pile. These pairs are out of the game.
3. The dealer now draws a card from the player on her/his right. If it is equivalent to a card in her/his hand, he/she discards the pair; if not he/she keeps it. The next player draws, and so on.
4. The game proceeds until all pairs are matched, leaving the Dingbat card in one player's hand. He/She is the loser.

Pre-Teaching: Prepare a display of equipment used in food preparation. Duplicate recipes and directions. Assemble related reference books.

Equipment has been designed and constructed to perform specific food preparation tasks.

Assign recipe to each student or each team of students. The task for the students is to study the recipe, view the display of equipment and list only those items that would be needed to prepare the recipe.

When the cook selects and uses the equipment which was designed for the task it is likely that the task will be done correctly, easily and safely.

Textbooks may be consulted for names of equipment and uses.

Equipment used to hold food while it is mixed includes mixing bowls of various sized (1 pt., 1 qt., 2 qt.). Bowls are deep and somewhat narrow to hold ingredients and allow for more complete mixing.

Individuals or teams will score points for each item of equipment which was a correct choice.

If incorrect choices are made students may still score a point if they can explain why the choice was incorrect.

The teacher may indicate suitable alternatives if a particular item were not available, i.e., camping.

Mixing and stirring equipment:
- wooden spoon (graduated sized) - creaming, stirring sauces, etc.
- rotary beater - icings, eggs,

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
cream wire whisk - beating air into egg whites standard electric mixer - mixing cakes, cookies beating eggs, icings hand mixer - whipping and mixing cakes and icings rubber scraper - cleaning sides of bowls	Demonstrations by teacher or competent students are suggested as ways of teaching techniques for using equipment and special care procedures. These demonstrations are probably most meaningful when related to preparation involving the particular piece of equipment.	
	Note: Cooking terms may be taught in conjunction with preparation of foods rather than as a separate section.	
	Transition: Teacher provides recipes either on chalkboard or overhead for foods similar to those that will be prepared.	
Equipment used for cutting and peeling: French or chef's knife - mincing and cutting nuts, celery, onion, etc. meat slicer - slicing meat bread knife, saw-tooth edge, slicing bread paring knife - paring, cutting vegetables, fruits, etc. kitchen shear - trimming pastry, cutting dried fruits, etc. peeler, swivel blade - scraping, peeling vegetables and fruits cutting board - protects table top or counter when cutting grater - grating cheese, vegetables, etc. to varying degrees of fineness	Ask: What general information is given in these recipes? Which food preparation terms are used? Which food preparation terms appear in two or more of the different food recipes? What food preparation equipment are used in each of the recipes? AND/OR Students select two terms which identify food preparation techniques. They may demonstrate the procedure to the class.	
	As summary and review later in unit, the teacher sets up a game situation dividing the class into two teams. Each team is asked to explain a food preparation term. If an accurate explanation is given that team is awarded a point.	
Equipment used for lifting and turning foods: pancake turner, spatula kitchen or meat fork tongs slotted spoon ladle spoons	Pre-Teaching: Review Selection of Food Products: Vehicles for Student Learning.	S.M.1
	Select a type of food product appropriate for the students. Assemble recipes which will be used by students.	S.M.6
	If necessary, demonstrate the preparation of the food selected.	
Preparing foods by heating on top of the range: saucepans (1 qt., 1½ qt., 2 qt., 3 qt.) cooking foods in liquid - double boiler - custards, sauces, icings skillets, large and small - frying broiling foods - griddle - pancakes, grilled sandwiches	Students may be involved in demonstration by having them explain abbreviations, terms and so forth which have been previously learned, or by demonstrating a particular technique they know. New learnings can be explained and illustrated by the teacher.	
	Pre-Teaching: Review Making the Most of Your Resources and S.M. 1 Experiences in Management.	
	Transition: Assist students in identifying and clarifying their goals for the laboratory experience.	
Preparing foods by baking (heating in an oven).	i.e., some food to eat - develop criteria for evaluation of product	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
square cake pan (8x8,9x9) cakes, bar cookies wire cooling racks - cooling cakes, cookies, etc. cake pans (8 or 9in.round) layer cakes cookie sheet - cookies, etc. muffin pan (6, 9 or 12 cup size) muffins, rolls	Introduce and explain other goals which they may wish to consider as part of the laboratory experience.	
	i.e., efficiency in performing tasks, sanitary, wholesome food, minimum amount of equipment and dishes to clean and store, freedom from accidents to themselves and equipment	
	Guide students in developing a plan of action to reach goals or permit students to formulate their own plans providing only the guidance which they seek.	
Success in food preparation partially depends upon knowledge and comprehension of cooking terminology.	**Pre-Teaching:** Develop observation guide for use during the laboratory experience.	
These terms are devided into three separate categories: terms for mixing techniques beat blend cream fold in mix sift stir terms for cutting techniques chop cut dice grate terms for cooking techniques bake boil broil fry	Accurate information regarding students' performance may be more easily collected if a limited number of aspects are the focus of observation. The particular aspects which are focused on can be rotated over the several laboratory experiences.	
	i.e., procedures and techniques utilized to maintain sanitary conditions, skill in performing the particular food preparation procedures involved in the preparation, measurement of ingredients	
	Review self-report Accomplishing a Task in Managing Your Resources.	
	Modify self-report form and prepare copies for students.	
	Prepare chart or visual to help students recall criteria for product evaluation.	
	Carry out laboratory experience and collect evidence of students' learnings.	
	Direct students in completion of self-report forms.	
	Guide students in the evaluation of their experiences. Provide feedback from observations. Encourage students to identify strengths of their performance and goals for continued learning.	
Nutrients are chemical substances found in foods which are used by the body to maintain health.	**Pre-Teaching:** Prepare a copy of the recipe used for class preparation which is large enough for the students to see (chalkboard, chart, or overhead).	
Different foods provide different nutrients.	Collect labels from packages of various forms of cereals and cereal products.	
Cereal grains and flours which are made from whole grain cereals or enriched cereals provide some of the nutrients used by the body.	Transition: Display recipe and direct students' attention to it.	
	On the visual write "FOODS PROVIDE NUTRIENTS".	
	Explain the meaning of the term nutrient.	
The nutrients which whole	Underline or circle the cereal grains that are included in the recipe.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
grain cereals and enriched cereals provide for the body in largest amounts include: carbohydrates - used by the body for energy B vitamins - thiamine, riboflavin, and niacin - needed for the body to maintain good health minerals iron and phosphorus needed for growth and good health protein - used for growth and repair	Identify the particular nutrients and functions provided by whole grain cereals and cereal products. Explain the meaning of enriched in reference to cereal products and flours. Ask: What foods do you eat frequently that are made from cereal grains? Acquaint students with the nutritional information which appears on the labels of various forms of cereals and cereal products. Students may examine labels, identify information and compare nutrients provided by foods.	
The principal cereal grains are used in a variety of foods that are eaten regularly in the diet.	**Pre-Teaching:** Select other types of food products which are composed largely of flour or other forms of cereal grains for laboratory preparation. Determine additional learnings which may be incorporated as part of the laboratory preparation. Emphasize the nutrient content of various preparations which have been selected as part of the learnings related to preparation.	
Fruits and vegetables are sources of several nutrients needed by the body to maintain good health. The major nutrients which fruits and vegetables supply are vitamins, minerals and carbohydrates. Fruits and vegetables in the fresh state are as good a source of the nutrients as they will every be.	**Pre-Teaching:** Arrange a display of a variety of fresh fruits and vegetables. Prepare copies of Fruits and Vegetables Survey. Review Nutrient Analysis of Vegetables and Fruits. Transition: Identify major nutrients in fruits and vegetables. Refer to survey and explain procedures for completing survey. The students may record the names of fruits or vegetable in the appropriate space. Sample the fruit or vegetable. Check the nutrients which the food provides. Complete the attitude questionaire. When charts are complete, encourage students to identify fruits and vegetables which are rich in specific nutrients. Contrast and compare their eating practices in regard to nutrient rich fruits and vegetables.	S.M.3 S.M.7
Fresh fruits and vegetables that are likely to be appealing in taste and which will keep those qualities for a period of time can be recognized by the following characteristics: color is that which is natural to the fruit or vegetable sound and free from blemishes and bruises crisp and firm not wilted or limp firm not soft or overripe	**Pre-Teaching:** Select several fruits and vegetables which illustrate characteristics associated with high quality and several which illustrate characteristics associated with poor quality. Transition: Explain and illustrate by contrast and comparison the characteristics of high quality fresh fruits and vegetables. Explain the effect of storage on preservation of quality. Show the effect of incorrect storage of fruits and vegetables.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
The way in which fruits and vegetables are handled and stored will affect their quality. Fruits and vegetables bruise easily. To avoid bruising, handle gently and as little as possible. To retain the natural moisture of the fruit and retard spoilage store all ripe fruits except bananas in the refrigerator. Store vegetables in the refrigerator except potaotes and onions which may be kept in cool dry storage. When preparing fruits and vegetables the goals are to preserve the natural nutritional value, retain the appearance of the food, thereby making it appealing to eat, and remove any harmful materials (soil, micro-organisms, sprays) Remove harmful materials that cling to the fruit or vegetable by thorough washing. Vitamins A, C, D and riboflavin are sensitive to visible light. To avoid the loss of these nutrients, the following procedures are recommended: prepare the food shortly before the fruit or vegetable is to be eaten cover or protect the cut surfaces from air and light The nutrients which are stored directly below the skin of the fruits and vegetables are lost or wasted when a peeling which is thick is removed. To avoid this loss, use the food without removing the skin or remove only a thin peeling. Some nutrients are water soluble. To retain these nutrients avoid soaking vegetables in water for long periods of time.	**Pre-Teaching:** Select several types of raw fruit and vegetable preparations. i.e., peel and section citrus fruits, section and core other fruits, dice fruits for fruit cup, section and slice fruits for fruit plate, vegetable garnishes or relish plates Identify major learnings which are to be developed. Transition: Explain the major goals to be achieved in the preparation of fruits and vegetables. Goals may be written for students to view as the remainder of the lesson is presented. Students may contribute to goal identification. Demonstrate the procedures and explain the reasons for the procedures. Include the appropriate terms and equipment.	S.M.9 S.M.10

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
Some fruits discolor or darken when exposed to air due to a reaction of enzymes in the fruit with oxygen. To prevent discoloration or enzymatic browning, oxygen may be kept from reaching the surface of the fruit by coating the surface with fruit juice containing ascorbic acid or sugar solution.	**Pre-Teaching:** Slice an apple, banana or other fruit which will darken when exposed to air. Allow the slices to darken. Transition: Direct students attention to darkened slices of fruit. Explain what has occurred and illustrate procedures to prevent darkening. Direct students in identification of goals for laboratory lesson. Carry out laboratory lesson and evaluation.	
Milk and foods made largely from milk contribute several nutrients to the diet. Minerals - calcium and phosphorus are required for formation of bones, teeth and proper function of muscles and nerves. Protein - high quality complete protein is required for growth and repair of all the body tissues. Carbohydrates, lactose (milk sugar), and fats are both used for heat and energy. Vitamins - A, riboflavin, thiamin, niacin, milk is often fortified with Vitamin D. These several vitamins contribute to health and functioning of the body in a variety of ways.	**Pre-Teaching:** Collect milk cartons from various types of milk, skim, 1%, etc. Prepare comparison chart of nutrients in various forms of milk and carbonated beverages. Transition: Provide copies of chart Nutrients in Milk. Refer to milk cartons. Determine by a show of hands the approximate number of students who have drunk each of the several forms of milk. Direct students attention to chart. Familiarize students with information on charts. Ask students to compare nutrients in several forms of milk. i.e., protein, calcium, phosphorus, iron, calories Identify nutrients provided by milk and function of nutrients. Direct students in the examination of cartons and labels to familiarize them with the types of information on the carton. Clarify the meaning of the term fortified. Compare the nutrient composition of milk and other carbonated beverages.	Nutrition: Buying and Selling S.M.8
Milk contains protein and milk sugar. When heat is applied to milk the protein coagulates (becomes firm and thick). Heating milk may produce a film (coagulated protein) on the surface of milk. The film contains nutrients. To distribute the film the milk may be beaten with a rotary beater. The carbohydrate (lactose sugar) in milk may scorch when the sorce of heat is a high temperature.	**Pre-Teaching:** Secure ingredients for the preparation of hot milk beverages such as cocoa or hot chocolate. Transition: Brainstorm a list of food preparations which contain large amounts of milk. Identify by a show of hands the frequency with which various types of milk based foods are eaten. Cooperatively select milk based food preparations for laboratory experiences. Recipes for cold milk beverages are suggested in the support materials. Illustrate and explain the effect of heat on the protein and carbohydrate in milk. Plan and carry out laboratory experiences.	S.M.13

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
To avoid scorching milk, heat slowly at a low temperature and only until tiny bubbles show around the edge of the pan.	**Pre-Teaching**: Assemble pictures of gelatin based desserts and salads. Arrange the bulletin board.	
Gelatin is made from the bones and certain connective tissues of animals. These tissues contain a protein substance called "collagen" which can be changed into gelatin.	Review nutrient chart for gelatins.	
Gelatin used in food preparation is either unflavored or flavored gelatin which is a mixture of sugar, gelatin and flavoring.	Assemble samples of unflavored gelatin and flavored gelatin dessert.	
Unflavored gelatin is a source of incomplete proteins. It is the only incomplete animal protein.	Transition: Refer to bulletin board and explain the source of gelatin and two basic types.	
Incomplete proteins do not contain all the essential amino acids. They cannot build new tissues nor renew worn tissues by themselves, but do work with other protein to build and repair tissue.	Display samples of unflavored gelatin and flavored gelatin with sugar added.	
Flavored gelatin provides incomplete protein and carbohydrates.	Explain the nutritional contribution of gelatin.	
The chief use of gelatin in food preparation is a carrier of other foods.		
Gelatin products are easily digested, bland in flavor and can be relatively low in calories.		
Sprinkle granulated gelatin on a small amount of cold water to soften.	**Pre-Teaching**: Assemble supplies for experiments related to the preparation of gelatin.	
Dissolve in hot liquid.	Prepare copies of Preparing Gelatin.	
If fruit or vegetables are to be added to the mold, arrange cut fruit or pieces of vegetable in the bottom of a mold and add just enough slightly chilled gelatin mixture to cover them. Chill until the gelatin sets, and repeat until the mold is complete.	Transition: Assign gelatin experiments to different laboratory groups. Each group will perform the experience as described. Observe results, report to the total class.	
	Class may summarize the findings and make recommendations for procedures to be used when making gels with flavored and unflavored gelatins.	
	Demonstrate procedure for preparation of molded gelatin product with unflavored gelatin.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
Two cups of gelatin mixture will hold up to 1½ cups of well drained fruits or vegetables. More fruits or vegetables will cause the mold to break. Unmolding gelatin: loosen the gelatin at the edges with the tip of a knife dip the mold to the depth of the gelatin in warm water for a few seconds tilt and rotate the mold sideways to allow air to loosen the sides top with a serving platter turn mold upside down and shake gently A variety of gelatin products is obtained by the use of different liquids to dissolve the hydrated gelatin, by the different ways of treating the liquid gelatin as it cools, and by the additon of different ingredients to the liquid gelatin.	Demonstrate the unmolding of gelatin. Identify various types of gelatin preparations. Cooperatively select those to be prepared as laboratory experiences. Plan and carry out laboratory experiences. Collect evidence of student learnings. Direct students in completion of appropriate self-report forms. Guide students in the evaluation of experiences. Provide feedback from observations. Encourage students in the identification of learnings and goals for continued learning.	

S. M. 1 NOTES TO THE TEACHER - SELECTION OF FOOD PRODUCTS: VEHICLES FOR STUDENT LEARNING

Direct experiences in the preparation of food products can provide opportunities for students to translate and apply learnings as well as develop additional insights.

The selection of food products to be prepared in part limits or controls the learnings which students are likely to develop as a result of the experiences.

The principles of cookery or preparation which will be used are related to types of food products. Other procedures utilized in food preparation are related to the preparation of a variety of food products. i.e., measuring ingredients, cooking abbreviations. Furthermore, other learnings such as those related to sanitation, safety, management of time, nutritional value of food can be a part of every food preparation activity without regard to the product being prepared.

The following chart is suggested as a tool to be used in the process of selecting types of food products for preparation and the examination of specific recipes as vehicles for learning.

The nutrient content of foods and the four food groups have been used as a beginning point in the selection of food products. The nutrient contribution of foods to the individual diet is deemed a significant learning which can develop as part of food preparation experiences if attention is directed to those learnings.

Cereal grains and products made from cereal grains have been used in the chart as an illustration of the use of the chart in identification of possible learnings. Each teacher is encouraged to select other food preparations as vehicles for learning.

Students are likely to view laboratory experiences as opportunities to prepare and eat food. If laboratory experiences are to serve other educational goals previously identified the teacher will need to help students to expand and become aware of the learnings which they are developing which permits them to prepare foods which are wholesome, attractive and nutritious, besides being fun to eat.

Feedback and evaluation procedures which focus on the students' performance (ability to translate various learnings into action) in the laboratory are likely to help students to maximize learnings incorporated in the particular laboratory lesson. Product evaluation is appropriate since a successful product is one source of evidence that some learnings have been accurately translated. However, exclusive emphasis on product perfection may tend to reinforce the students' concept of laboratory lessons as experiences in cooking and eating and detract from the other learnings to be gained.

S. M. 1 (cont.)

Food Group	Types of Food Preparation	Cooking Abbreviations	Measurement of Dry Ingredients	Measurement of Liquid Ingredients	Measurement of Solid Ingredients	Cooking Terms and Related Techniques	Top of Range Cookery	Oven Cookery	Broiler Cookery	Food Preparation Principles	Number of Procedures or Techniques Involved in Recipe
Cereals and products made from cereal grains	Toasted cereal snacks in general	x	x	x	x	x	x	x			
	Toasted cereal snacks, a specific recipe	c. to t.	x		x	mix blend stir bake melt	melt shtg.	bake			4-5
	Cooked cereals from ingredients	x	x	x		x	x			x	
	Quick breads from ingredients	x	x	x	x	x		x		x	
	from mix	x		x		x		x		x	
	Cookies from ingredients	x	x	x	x	x		x		x	
	from mix	x		x		x		x		x	

S. M. 2 COOPERATION OR TEAM WORK

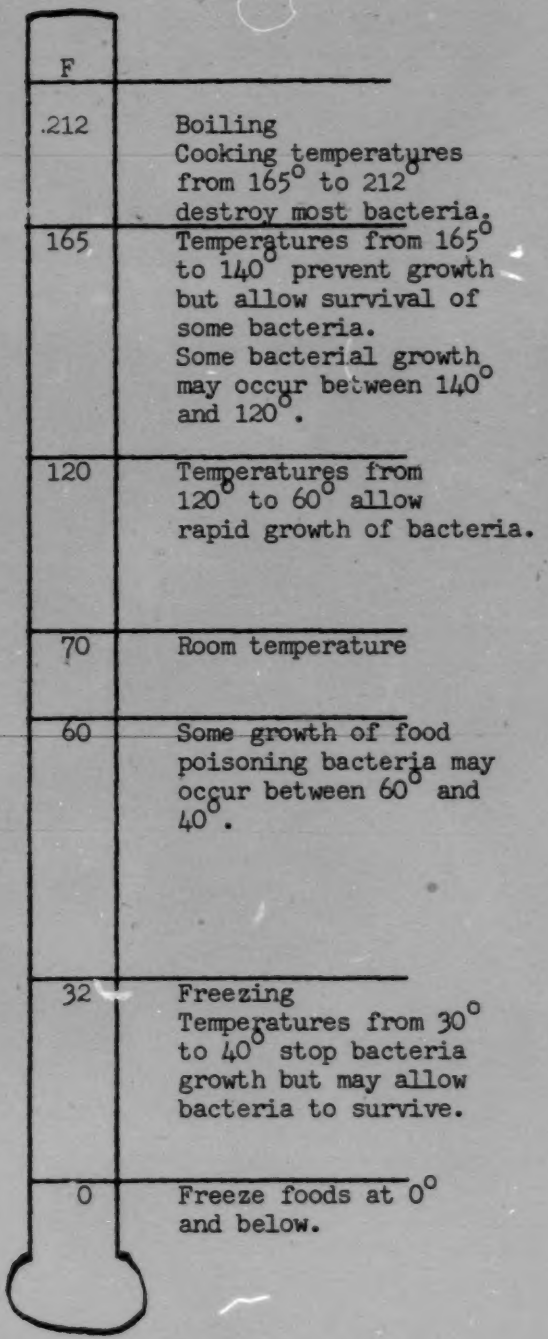
Example A — Martha, Anne and Paul really enjoy home economics class, especially the days when they get to prepare a food product in their kitchen laboratory group. They carefully fill out their time management schedule dividing all tasks equally among themselves. And when they work each gets their job done quickly and efficiently. In fact, they're usually the first group to eat and get cleaned up on time.

Non-example B — Mark, Laura and Linda are kitchen laboratory partners in unit 2. Laura is not very skillful in working in the kitchen, but she does try very hard to always do her best. Linda, on the other hand, acts as if she knows how to do everything for a laboratory experience. She is constantly telling Laura she is doing something wrong or should be doing something else! Mark does the tasks that he has been given, doesn't often enter into the decision-making. Mark and Laura usually do whatever Linda decides. Sometimes important things are forgotten and the group doesn't get their work done.

Example A — Jack and Todd had been assigned as partners for a demonstration in their home economics class. Ms. Rogers had asked them to explain and show the class an efficient and effective way to do dishes. The boys decided that Todd would begin by describing the equipment that would be used. Jack would tell why it was important to use hot water and detergent. Then both boys would show how to handle the dishes to prevent breakage and be certain they were clean. When the demonstration was over the boys felt they had done a good job. Ms. Rogers said the demonstration was complete and the boys were able to answer the questions of their classmates.

Non-example B — Ms. King the home economics teacher glanced at the clock and said, "Class, we have only 10 minutes before the hour is over. I see that some of you have quite a bit of work left to do." Unit 6 knew Ms. King meant them. Everyone began to rush. Marge bumped into Paul who was trying to help by putting the dishes away and one of the dishes fell and broke. Jenny emptied the dishwater before the pots and pans were washed. Sally didn't seem to know what should be done. The bell rang. Unit 6 was still not done with their work.

S. M. 3 CONDITIONS FRIENDLY AND UNFRIENDLY TO MICROORGANISMS


F
212
Boiling
Cooking temperatures from 165° to 212° destroy most bacteria.
165
Temperatures from 165° to 140° prevent growth but allow survival of some bacteria.
Some bacterial growth may occur between 140° and 120°.
120
Temperatures from 120° to 60° allow rapid growth of bacteria.
70
Room temperature
60
Some growth of food poisoning bacteria may occur between 60° and 40°.
32
Freezing
Temperatures from 30° to 40° stop bacteria growth but may allow bacteria to survive.
0
Freeze foods at 0° and below.

S. M. 4 WHAT SHOULD NOT GO INTO THE DISHWASHER

Item	Reason
Colored Anodized Aluminum	Color may be removed by the high temperature and alkaline solution in the dishwasher.
Antique and/or Hand-Painted China	Patterns may be removed by the hot detergent solution and washing action.
Wooden Items	Wood will dry out, crack, roughen, and warp.
Hollow-Handled Knives	Glue used to connect hollow handles may loosen from the heat. Flatware of recent manufacture is stronger and will hold.
Pewter	Will stain and discolor.
Cast Iron	Seasoning will be removed and it will rust.
Milk Glass	Heat may cause yellowing.
Some Plastics	May melt and warp.
Dirilyte	Gold color will be removed.

S. M. 5 ABBREVIATIONS IN COOKERY

Tablespoon = T. or tbsp.
Teaspoon = t. or tsp.
Cup = C. or c.
Pint = pt.
Quart = qt.
Pound = lb. or #
Minute = min.
Hour = hr.
Ounce = oz.
Square = sq.
Few grains = f.g.
Dozen = doz.
Moderate = mod.
Package = pkg.
Baking powder = b.p.
Degree = ° (sauch as 350°)

S. M. 6 CEREAL SNACKS

Toasted Cereal Snacks

Warm or cool, this crunchy combo disappears by the handful.

2 cups corn puffs cereal
2 cups O-shaped puffed oat cereal
2½ cups pretzel sticks
1½ cups mixed nuts
1/3 cup butter or margarine, melted
1 T Worchestershire sauce
½ t garlic salt
½ t celery salt

Heat oven to 250°. Mix cereals, pretzels and nuts in baking pan, 13 x 9 x 2 inches. Blend butter and seasonings. Pour over cereal mixture. Bake 30 minutes, stirring gently with wooden spoon after 15 minutes.

Makes about 8 cups.

Peanut Mallow Chews
1/3 cup butter or margarine
3 cups miniature marshmallows
½ cup peanut butter
5 cups fruit-flavored corn puffs cereal

In large saucepan, melt butter and marshmallows over low heat, stirring constantly. Stir in peanut butter until melted. Remove from heat; fold in cereal, stirring until evenly coated.

With buttered hands, pat evenly into buttered baking pan, 9 x 9 x 2 inches. Cool, cut into bars, about 3 x 2 inches.

Makes 12 bars.

Substitution: For miniature marshmallows, 32 large marshmallows, cut up.

Chocolate Oatmeal Squares

½ cup butter or margarine, softened
1¼ cups sugar
3 eggs
1 t salt
1 t baking powder
1 t vanilla
3/4 cup all-purpose flour
¼ cup cocoa
1½ cups quick-cooking rolled oats
1 pkg. (6 oz.) semi-sweet chocolate pieces

In mixing bowl combine all the ingredients. Spread in greased 13 x 9 inch pan. Bake in oven at 350° for 25 to 30 minutes. Cool, cut into squares. Dust with confectioner's sugar if desired. Makes 35 squares.

S. M. 6 (cont.)

Breakfast Bars

½ cup butter or margarine
3 cups miniature marshmallows
½ cup peanut butter
½ cup nonfat dry milk
¼ cup orange-flavored instant breakfast drink
1 cup raisins
4 cups O-shaped puffed oat cereal

In large saucepan, melt butter and marshmallows over low heat, stirring constantly. Stir in peanut butter until melted. Mix in milk and breakfast drink.

Remove from heat; fold in raisins and cereal, stirring until evenly coated. With buttered hands, pat evenly into buttered baking pan, 9 x 9 x 2 inches. Cool, cut into bars, about 3 x 1 inch.

Makes 24 bars.

Substitution: for miniature marshmallows, 32 large marshmallows, cut up.

S. M. 7 NUTRIENT ANALYSIS OF VEGETABLES AND FRUITS

Food Item	Amount Unit	Calories	Protein (Gm)	Fat (Gm)	CHO (Gm)
Asparagus	½ cup	15.	2.	0	3.
Beets	½ cup	28.	1.	0	6.
Broccoli	3 stalks	135.	18.	3.	24.
Cabbage	½ cup	8.	1.	0	2.
Carrots	½ cup	23.	1.	0	5.
Cauliflower	½ cup	13.	2.	0	3.
Celery	½ stalk	3.	0	0	1.
Corn, Sweet	½ cup	85.	3.	1.	20.
Beans, Dry	½ cup	130.	8.	1.	25.
Beans, Snap	½ cup	23.	1.	0	5.
Dandelion Greens	½ cup	30.	2.	1.	6.
Kale, Leaves	½ cup	15.	2.	1.	2.
Lettuce	¼ head	15.	1.	0	3.
Onions	¼ onion	1.	0	0	0
Peas, Green	½ cup	83.	5.	1.	16.
Potatoes	1 potato	105.	3.	0	23.
Sauerkraut	½ cup	23.	1.	0	5.
Spinach	½ cup	20.	3.	1.	3.
Squash	½ cup	65.	2.	1.	16.
Sweet Potatoe	½ cup	118.	2.	0	27.

S. M. 7 (cont.)

Food Item	Amount Unit	Calcium (Mg)	Iron (Mg)	Vit A (I.U.)	Vit C (Mg)	Thiamine (Mg)	Riboflavin (Mg)	Niacin (Mg)
Asparagus	½ cup	15.	.4	655.	19.	.12	.13	1.0
Beets	½ cup	12.	.4	15.	5.	.03	.03	.3
Broccoli	3 stalks	474.	4.2	13500.	486.	.48	1.08	4.2
Cabbage	½ cup	17.	.2	45.	17.	.02	.02	.1
Carrots	½ cup	24.	.4	7610.	5.	.04	.03	.4
Cauliflower	½ cup	13.	.4	35.	33.	.05	.05	.4
Celery	½ stalk	8.	.1	50.	2.	.01	.01	.1
Corn, Sweet	½ cup	5.	.5	345.	7.	.03	.06	1.1
Beans, Dry	½ cup	28.	3.0	0	0	.13	.05	.6
Beans, Snap	½ cup	41.	1.5	345.	5.	.03	.05	.4
Dandelion Greens	½ cup	126.	1.6	10530.	16.	.12	.14	0
Kale, Leaves	½ cup	74.	.6	4070.	34.	0	0	0
Lettuce	¼ head	23.	.6	375.	7.	.07	.07	.3
Onions	¼ onion	1.	.0	0	1.	.00	.00	.0
Peas, Green	½ cup	25.	2.1	560.	11.	.12	.07	1.1
Potatoes	1 potato	10.	.8	0	22.	.13	.05	2.0
Sauerkraut	½ cup	43.	.6	60.	17.	.03	.04	.2
Spinach	½ cup	84.	2.0	7290.	25.	.07	.13	.5
Squash	½ cup	29.	.8	4305.	14.	.05	.13	.7
Sweet Potato	½ cup	27.	.9	8500.	15.	.05	.05	.7

S. M. 7 (cont.)

Food Item	Amount Unit	Calories	Protein (Gm)	Fat (Gm)	CHO (Gm)
Apples, Raw	1 apple	70.	0	0	18.
Applesauce, Canned	½ cup	115.	1.	0	31.
Apricots	½ cup	110.	1.	0	29.
Avocados	½ avocado	185.	3.	19.	7.
Bananas, Raw	1 banana	100.	1.	0	26.
Cantaloups	¼ melon	30.	1.	0	7.
Fruit Cocktail	½ cup	98.	1.	0	25.
Orange Juice	3/4 cup	90.	2.	0	22.
Oranges, Raw	1 orange	65.	1.	0	16.
Grapefruit	½ grapefruit	45.	1.	0	12.
Grapes, Raw	½ cup	33.	1.	1.	8.
Peaches, Raw	1 peach	35.	1.	0	10.
Peaches, Canned	½ cup	100.	1.	0	26.
Pears, Raw	1 pear	100.	1.	1.	25.
Pears, Canned	½ cup	98.	1.	1.	25.
Pineapple, Raw	½ cup	38.	1.	0	10.
Pineapple, Canned	½ cup	98.	1.	0	25.
Raisins	1 package	40.	0	0	11.
Strawberries	½ cup	28.	1.	1.	7.
Watermelon	1 wedge	115.	2.	1.	27.

S. M. 7 (cont.)

Food Item	Amount Unit	Calcium (Mg)	Iron (Mg)	Vit A (I.U.)	Vit C (Mg)	Thiamine (Mg)	Riboflavin (Mg)	Niacin (Mg)
Apples, Raw	1 apple	8.	.4	50.	3.	.04	.02	.1
Applesauce, Canned	½ cup	5.	.6	50.	2.	.03	.02	.1
Apricots	½ cup	14.	.4	2255.	5.	.03	.03	.4
Avocados	½ avocado	11.	.6	315.	15.	.12	.21	1.8
Bananas, Raw	1 banana	10.	.8	230.	12.	.06	.07	.8
Cantaloups	¼ melon	14.	.4	3270.	32.	.04	.03	.6
Fruit Cocktail	½ cup	12.	.5	180.	3.	.03	.02	.6
Orange Juice	3/4 cup	19.	.2	413.	90.	.17	.02	.8
Oranges, Raw	1 orange	54.	.5	260.	66.	.13	.05	.5
Grapefruit	½ grapefruit	19.	.5	10.	44.	.05	.02	.2
Grapes, Raw	½ cup	8.	.2	50.	2.	.03	.02	.1
Peaches, Raw	1 peach	9.	.5	1320.	7.	.02	.05	1.0
Peaches, Canned	½ cup	5.	.4	550.	4.	.01	.03	.7
Pears, Raw	1 pear	13.	.5	30.	7.	.04	.07	.2
Pears, Canned	½ cup	7.	.3	0	2.	.02	.03	.2
Pineapple, Raw	½ cup	12.	.4	50.	12.	.06	.02	.2
Pineapple, Canned	½ cup	15.	.4	60.	9.	.10	.03	.3
Raisins	1 package	9.	.5	0	0	.02	.01	.1
Strawberries	½ cup	16.	.8	45.	44.	.02	.05	.5
Watermelon	1 wedge	30.	2.1	2510.	30.	.13	.13	.7

S. M. 8 FRUIT AND VEGETABLE SURVEY

Name of Fruit or Vegetable	Nutrient						Attitude			
	Vitamin C	Vitamin A	Vitamin B_1, B_2, Niacin	Vitamin D	Calcium	Iron	I eat often	I eat once in a while	I dislike	I've never tasted

S. M. 9 FUN WITH VEGETABLE SNACKS

Vegetables are probably the furthest thing from your mind when you come home from school hungry or when planning snacks for the party during the weekend, but actually they should be at the top of your list. Vegetables can be fun snacks which add color to your table, texture to the meal, and mouth-watering flavor.

Vegetables are rich in nutritive value, making them a nutritious snack, besides a fun and tasty snack. They (vegetables) are rich in vitamins and minerals, which help develop shiny eyes, glossy hair, and clear skin. Vegetables also help to build strong muscles, solid bones, and healthy blood. They give bulk and roughage to the diet, which aids the digestive process.

Aside from doing all of the above, vegetables are low in calories, so that they make a great food to crunch on when you are watching your weight. With all of these positive factors how can you not give vegetables a try?

Fun With Raw Vegetable Snacks

Vegetable snacks are unlimited. All it takes is a little imagination and a lot of vegetables. Here are a few ideas to start your wheels turning.

Celery Sticks Wash celery stalks. Cut lengthwise, once or twice depending on the size of the stalk. Then cut lengthwise to form sticks.

Stuffed Sticks Do as instructed above. Fill centers of celery with cheese whiz or peanut butter.

Celery Fans Cut celery in sticks, then cut lengthwise from each end, not cutting through the center. Place in ice water. Watch the celery curl.

Carrot Curls Peel carrots. Then cut lengthwise strips with vegetable peeler. Rest carrot on board, peel away from you. Roll up long slices using toothpicks to hold. Chill at least one hour in ice water. Remove tooth pick before serving.

Carrot Crisps Peel carrot with vegetable peeler and slice carrots crosswise. Chill in ice water but do not soak.

Carrot Crinkles Peel carrot. Run fork lengthwise down the carrot. Slice carrot crosswise with knife.

Rose Radishes Slice part way down on the edge of the radish. Do this on four sides. Place in ice water and watch the radishes turn to roses.

Radish Fans Select a long red radish. Cut not quite through in 8-10 narrow slices. Chill in ice water.

Radish Slices Slice radishes crosswise.

Cucumber Slices Run fork down a cucumber lengthwise all the way around. Slice crosswise with a knife or peel cucumber so it has stripes and slice crosswise with a knife.

Cauliflower Blossoms Break off section of a head of cauliflower, either large or small. If they seem too large why not try slicing lengthwise.

Tomato Burst Take out center of cherry tomatoes. Fill center with cream cheese and garnish with parsley.

S. M. 10 TASTE TEMPTERS

Oh, I'm so hungry when I come home from school. Nothing seems to satisfy my hunger. If I eat a lot I'm not hungry at meal time. We had fruit snacks at school and they are so refreshing and really hit the spot. In addition to being fun to eat and fun to prepare, they are good. They provide us with vitamins that our bodies need for growth and health.

Hints to help you prepare your fruit snack:

1. Use the fruits that are fresh
2. Wash them throughly to remove soil and chemicals
3. Handle them as little as possible to minimize bruising
4. Arrange them neatly for serving
5. Sprinkle with lemon juice to prevent browning

Choose Two Or Three Fruit Snacks To Make In Each Unit

Apple Treats	Cut apples in fourths and remove the core. Fill the hole with cheese spread, peanut butter, or cream cheese.
Applewiches	Core apples and cut thick rounds leaving the peel on. Spread with topping such as cheese spread, cream cheese, peanut butter, mayonnaise, sliced ham or chicken and any ground meat mixed with mayonnaise.
Banana Wedges	Peel bananas, cut in wedges and dip in lemon juice.
Banana Nut Dips	Peel banana, cut in halves, wedges or slices. Dip in lemon juice. Roll in coconut or finely cut nuts.
Orange Bites	Wash but do not peel orange. Slice crosswise so pieces are in shapes of circles. Cut little bite size wedges. Serve to be eaten with your fingers.
Fruit Kabobs	Select 2 or 3 fruits, i.e., banana, apple, melon, pineapple, grape. Wash thoroughly, cut into appropriate sized cubes and place on skewer or tooth picks.
Fruit Cup	Combine canned and fresh fruit. Chill.
Fruit Plate	Select 3-4 fruits and prepare attractive fruit plate.

S. M. 11 NUTRIENT ANALYSIS OF CARBONATED BEVERAGES

Food Item	Amount Unit (fl. oz.)	Calories	Protein (Gm)	Fat (Gm)	CHO (Gm)
Carbonated water	12	115	0	0	29
Cola type	12	145	0	0	37
Fruit-flavored sodas	12	170	0	0	45
Ginger ale	12	115	0	0	29
Root beer	12	150	0	0	39

Food Item	Amount Unit (fl. oz.)	Calcium (Mg)	Iron (Mg)	Vit A (I.U.)	Vit C (Mg)	Thiamine (Mg)	Riboflavin (Mg)	Niacin (Mg)
Carbonated water	12	-	0	0	0	0	0	0
Cola type	12	-	0	0	0	0	0	0
Fruit-flavored sodas	12	-	0	0	0	0	0	0
Ginger ale	12	-	0	0	0	0	0	0
Root beer	12	-	0	0	0	0	0	0

S. M. 12 NUTRIENT ANALYSIS OF GELATIN

Food Item	Amount Unit	Calories	Protein (Gm)	Fat (Gm)	CHO (Gm)
Gelatin: Plain, dry powder in envelope	1 envelope	25	6	Tr.	0
Dessert powder, 3-oz. package	1 package	315	8	0	75
Dessert, prepared with water	1 cup	140	4	0	34

Food Item	Amount Unit	Calcium	Iron	Vit A	Vit C	Thiamine	Riboflavin	Niacin
Gelatin: Plain, dry powder in envelope	1 envelope	-	-	-	-	-	-	-
Dessert powder, 3-oz. package	1 package	-	-	-	-	-	-	-
Dessert, prepared with water	1 cup	-	-	-	-	-	-	-

S. M. 13 FROSTY MILK DRINKS

1. Apple Milk Shakes
   1 pt. vanilla ice cream
   2½ c. milk
   2½ c. apple juice

Gradually add chilled apple juice to ice cream. Beat with rotary beater. Add milk and continue beating until blended. Top each serving with a dash of cinnamon. Serve immediately.

2. Orange Refresher
   4 c. cold milk
   6 T. sugar
   1 c. concentrated orange juice
   1 pt. vanilla ice cream

Combine milk, orange juice, sugar and ½ of the ice cream in a mixing bowl. Beat until smooth. Pour into glasses. Top each serving with a scoop of ice cream.

3. Peanut Butter Shake
   2 T sugar
   1 t vanilla
   2 c. reconstituted non-fat dry milk
   ½ cup peanut butter

Combine sugar, vanilla and milk. Stir milk mixture into peanut butter with fork, a small amount at a time. Pour into jar with tight lid. Shake well. Store in the covered jar in refrigerator. Shake well before serving. Makes three servings. (To make a float, add scoop of vanilla ice cream.)

4. Cranberry Banana Shake
   2 bananas
   4 T (¼ c.) vanilla ice cream
   2 c. cranberry juice cocktail, chilled

Slice bananas into a bowl and beat with a rotary beater, electric mixer or blender, until smooth and creamy. Add cranberry juice and ice cream. Beat well. Serve immediately. Serves 4.

5. Strawberry Float
   1 10 oz. pkg. strawberries, frozen
   1 at. vanilla ice cream
   1 c. cold milk
   ¼ t. almond extract

Put thawed strawberries in a 1½ qt. bowl. Add milk, half the ice cream, and the almond extract. Beat slowly with a rotary beater until smooth.

6. Banana Milk Shake
   4 bananas, mashed
   ½ tsp. cinnamon
   4 c. milk
   1 pt. vanilla ice cream
   dash of salt

Combine the ingredients in a mixer bowl or just any type of bowl and blend well. Pour into glasses and serve immediately. Serves 6.

S. M. 14 PREPARING GELATIN

Directions: Read the instructions and complete the preparation of the gelatin.

I. Combine 1 tsp. of unflavored gelatin and 2 tbsp. cold water. Allow mixture to stand 5 minutes. Add ½ cup hot water, stir. Pour into mold and chill for several hours.

II. Combine 1 tsp. unflavored gelatin and 2 tbsp. boiling water. Allow mixture to stand 5 minutes. Add ½ cup boiling water, stir. Pour into mold and chill for several hours.

III. Combine 1 tsp. unflavored gelatin and ¼ tsp. sugar. Mix. Add 2 tbsp. boiling water. Stir. Add ½ cup boiling water, stir. Pour into mold and chill for several hours.

IV. Combine 1 tsp. unflavored gelatin and 2 tbsp. cold water. Allow mixture to stand 5 minutes. Add 2 tbsp. of lemon juice. Stir. Chill.

V. Combine 1 tsp. unflavored gelatin and 2 tbsp. cold water. Allow mixture to stand 5 minutes. Add 2 tbsp. water. Stir. Chill.

VI. Combine 1 tbsp. flavored gelatin and 1/3 c. cold water. Stir. Pour into mold and chill.

VII. Combine 1 tbsp. flavored gelatin and 1/3 c. hot water, stir. Pour into mold and chill.

Record observations.
Appearance of gelatin mixture before it was chilled.

Appearance of gelatin mixture after chilling.

To add fruits and vegetables, chill the gelatin until very thick, not set, before adding other ingredients. If gelatin isn't thick enough, fruits and vegetables may float or sink. (Do not add fresh or frozen pineapple, figs, mangoes, or papayas or frozen fruit juice blends containing these fruits - an enzyme in these fruits when fresh, keeps gelatin from setting. When cooked or canned these fruits are excellent in gelatin.)

***

To layer gelatin mixtures, chill each layer until set, but not firm, before adding the next layer - if the first layer is too firm, the layers may slip apart when unmolded. Many layers may be built up in this way. Except for the first layer, the gelatin mixtures should be cool and slightly thickened before being poured into mold - if mixture is warm, it may soften the layer beneath and mixtures may run or mix together.

***

Substitute ice cubes for cold water in preparing gelatin to shorten the required chilling time.

To use ice cubes, dissolve flavored gelatin in boiling water as directed on package; then add ½ tray ice cubes (7 to 10) for 3 oz. package gelatin or 14 to 20 ice cubes for 6 oz. package. Stir about 3 minutes to melt ice, or until gelatin is thickened. Remove any unmelted ice. Pour into serving dishes or individual molds. Chill until soft-set and ready to eat from dishes, about 30 minutes, or until firm enough to unmold, about 1 hour.

How to Whip Gelatin - One of the easiest things you can do to change the texture and appearance of gelatin is to whip it until thick and fluffy.

Prepare gelatin (any fruit flavor) as directed on package and chill until very thick. Then beat with rotary beater or electric mixer until mixture is fluffy and thick - about double in volume results in the best eating quality and flavor.

To shorten the chilling and beating times, chill the gelatin until slightly thickened. Then place the bowl of gelatin in another bowl of ice before starting to beat.

Pour whipped gelatin into molds or shallow pan, or add cubes of gelatin or fruit and pour into molds. Chill until firm. Unmold, cut in squares, or spoon into serving dishes; serve with fruit or a custard sauce, if desired. A 3 oz. package makes about 4 cups, or 4 or 5 servings; a 6 oz. package makes about 8 cups, or 9-10 servings.

How to Cube Gelatin - Brightly colored cubes that are delicious served alone, with fruits, or in desserts and salads.

1 package (3 oz.) flavored gelatin
1 cup boiling water
3/4 cup cold water (for very firm cubes, cold water may be reduced to ½ cup. For softer cubes, cold water may be increased to 1 cup.

Dissolve flavored gelatin in boiling water. Add cold water. Pour into a shallow pan. Chill until firm, at least 4 hours or overnight. (Cubes hold their shape best when gelatin is chilled overnight.) Then cut in cubes, using sharp knife which has been dipped in hot water. To remove cubes from pan, apply warm wet cloth over bottom of pan; then remove with spatula. Or quickly dip pan in warm water and invert on wax paper. Serve in sherbet glasses with cream or fruit, if desired. Makes four servings.

How to Flake Flavored Gelatin - Delicate flakes of flavored gelatin set off fruit or cream beautifully.

1 package (3 oz.) flavored gelatin
1 cup boiling water
3/4 cup cold water

Dissolve flavored gelatin in boiling water. Add cold water. Pour into a shallow pan. Chill until firm - at least 4 hours. Break into small flakes with a fork or force through a ricer or large-meshed strainer. Pile lightly in dishes. Top with fruit or ice cream, if desired. Makes 1 3/4 cups or 4 servings.

S. M. 16

REFERENCES

Books:

Duffie, Mary Ann. So - You Are Ready to Cook. Minneapolis, Minnesota: Burgess Publishing Company, 1974.

Medved, Eva. The World of Food. New York: Ginn and Company, 1973.

Shank, Dorothy E., Natalie K. Fit, Pauline A. Chapman, and Mary S. Sickler. Guide to Modern Meals. Webster Division, McGraw-Hill Book Co. 1970.

Pamphlets:

Benson, Jeffrey. Let's Take Milk Apart. National Dairy Council, 111 North Canal St., Chicago, Illinois.

Darling, Mary E. and Leona S. Nelson. Milk. Agricultural Extension Service, Cooperative Extension Service, University of Minnesota, St. Paul, Minnesota.

Lamison, Mary F., Wanda W. Olson, Leona S. Nelson. Easy Dishwashing. University of Minnesota, Cooperative Extension Work Bulletin. HS-1, revised 1972. University of Minnesota, St. Paul, Minnesota.

Milk in Family Meals - A Guide for Consumers. Home and Garden Bulletin No. 127, United States Department of Agriculture, Washington, D.C., March 1972.

Milk Information Sheet. National Dairy Council. 111 North Canal St., Chicago, Illinois.

Visuals:

Norm Pierce and Associates. Unwanted Four, filmstrip and accompanying record. National Restaurant Association, 1530 North Lake Shore Drive, Chicago, Illinois, 1974.

Single Service Institute, with the counsel and assistance of Home Economics Consultant, Karr, Barbra B. It's A Healthier World (Health - A Total Concept). (Filmstrip and record) Single Service Institute, 250 Park Avenue, New York, New York, 1974.

The Kitchen - A Recipe for Safety. Minneapolis Gas Company. (filmstrip) Educational Services, Minneagasco, 733 Marquette Ave., Minneapolis, Minnesota.

UNIT TITLE: *ENJOYING OUTDOOR COOKERY*

UNIT FOCUS: Three types of outdoor food preparation settings provide an organizational structure for student activities in the classroom and outdoors. Principles of food storage, preparation and serving are included in the unit. Meat, vegetable and pasta cookery principles are presented with attention to adaptations to outdoor facilities. The preparation of quick breads, desserts and beverages from recipes adapted to outdoor preparation are included. The basic nutrients and their functions are incorporated in the unit as various types of food which provide those nutrients are studied. Laboratory lessons are interspersed throughout the unit. It is suggested that several preparation and serving experiences be performed in the outdoor settings.

RATIONALE: Interest and involvement of individuals and groups in outdoor cookery has increased recently. The context of outdoor cookery can provide a vehicle for teaching principles of food preparation, meal management and nutrition. Some participants in outdoor cookery view outdoor food preparation as a task which provides an opportunity to experience personal satisfaction and fulfillment as a result of successful accomplishment. For others, outdoor food preparation is part of larger activity which the individual has chosen to undertake because the activity gives satisfaction. Whatever the motivation, the ability to perform the food preparation tasks effectively will increase the individual's enjoyment of the activity and the satisfaction experienced. Instruction which enables students to understand and utilize basic food preparation principles will enchance their ability to perform effectively in a variety of settings.

INSTRUCTIONAL OBJECTIVES:

Comprehension of the characteristics of outdoor food preparation settings
Comprehension of the resources utilized in food preparation and serving tasks in an outdoor setting
Comprehension of the function of basic food nutrients
Knowledge of food sources of each of the basic nutrients
Willingness to consider nutrient contribution in the selection of foods for outdoor cookery
Comprehension of the principles of meat cookery
Comprehension of the principles of vegetable cookery
Comprehension of the principles of pasta cookery
Comprehension of the principles of food storage
Willingness to employ food preparation and storage principles in an outdoor setting
Ability to translate a standardized recipe into food preparation procedures
Comprehension of sanitation procedures appropriate to food preparation in an outdoor setting
Willingness to employ sanitation procedures appropriate to outdoor food preparation
Comprehension of several types of food service appropriate to an outdoor setting
Comprehension of the effect of management practices on enjoyment of food preparation in an outdoor setting
Willingness to employ management practices to the several tasks associated with outdoor cookery
Finds pleasure in the various tasks associated with outdoor food preparation and serving.

EDUCATIONAL BACKGROUND: This unit is appropriate for students who have completed basic food preparation and nutrition courses. Level II

SUGGESTED TIME: 6 weeks

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
Food preparation in an outdoor setting is characterized by: major food preparation equipment which is different from customary indoor food preparation equipment space available may or may not have to be planned to fit the outdoor food preparation tasks source of water may not be convenient to the outdoor cookery area "extra" equipment may not be readily available; to insure that needed equipment is available special care must be taken "extra" food supply will vary depending on location of outdoor food preparation setting equipment and supplies used are often transported to the outdoor food preparation site procedures for disposal of garbage may be different than those used when food preparation is completed indoors	**Pre-Teaching:** Review Notes to the Teacher. Prepare copies of outdoor cooking survey. Collect and mount pictures which illustrate a variety of types of outdoor food preparation and serving settings and a variety of indoor settings as suggested for the mystery game.	S.M.1 S.M.2 S.M.3 S.M.4
	Introduction: Begin the unit with the Mystery Game. Do not give any clues as to the subject of the game. Explain steps 4, 5, 6 to students and allow 10-15 minutes for this activity.	
	It is not necessary that groups illustrate indoor and outdoor food preparations at this point, nor that there be only two groups. It is important that the students have identified and can explain why they find the pictures in a group similar. Ask them to explain how the pictures are alike. Other class members should listen carefully to determine if the grouping and reasons are true. When each group has finished their explanation, the class or reporting group of students may suggest a name for that group. i.e., camping, picnic, cooking at home. Continue this procedure until all groups have reported.	
	Direct sttention to the groupings which have been formed. Ask:	
	Are any of these groups similar? How?	
	Which can be put together? Why?	
	Accept responses. Encourage student clarification by asking:	
	Why are they similar?	
	How are they alike?	
	As students examine groupings and consider similarities and differences in food preparation indoors and outdoors, questions may be asked to help them identify ideas identified in the conceptual content.	
	What is different about preparation for food outdoors?	
	At the conclusion of the experience, pictures may be placed on bulletin board with appropriate titles: "Outdoor Cookery", "Cookouts", "Cooking as Usual", or "Indoor Cooking".	
	Transition: The pictures illustrate some of the differences between outdoor and indoor food preparation. Some class members may have experienced outdoor cookery. Explain the Outdoor Cooking Experience and Equipment form.	
	Allow time for students to complete the form. Information reported may be used to : identify individuals who may act as resource persons and perhaps bring specialized equipment	
Food preparation and serving in an indoor setting is characterized by: major food preparation equipment which is customarily used is present at the location space has been planned for the various food preparation and serving tasks equipment is available for a variety of tasks and has been arranged for efficient use water is readily available garbage disposal arrangements are available "extra" equipment is readily available "extra" food supplies are readily available		

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	identify students with similar experiences as a basis for forming working groups identify equipment that might be used for classroom learnings	
Management is a series of operations (mental and physical) which are designed to reach a particular goal. Formulating a plan of action involves: identification and clarification of goals (what is to be accomplished) idnetification and/or creation of resources (what things are available or can be created to help reach the goal)	**Pre-Teaching:** Prepare copies of A Tale About A Cookout. Assemble books, periodicals and other reference materials which describe facilities for outdoor food preparation. Transition: Food preparation in an outdoor setting is similar to food preparation in the usual indoor setting. However, there are some differences as well. Give students copies of the case situation. As the case situation is read, think about what happens in the situation and the reasons for those happenings.	S.M.5
Resources are the talents which individuals have and the material goods which belong to people that are used to reach or achieve goals. creation of alternative ways to combine resources to reach goals consideration of alternative ways to combine resources to reach goals consideration or study of the probable consequences of each alternative (which plan is best) selection of a way to use resources to reach goals is influenced by a person's ideas of what is important, good or worthwhile	Read the case situation. Guide students in a discussion of the questions attached to the case study. Encourage students to identify the several parts or operations included in the process of management. Transition: One of the activities which might have helped the people in the cookout situation have a more successful experience is related to a complete knowledge of the resources available in the setting where the food is to be prepared and served. As a first step in getting ready for outdoor cookery each group can become familiar with the setting in which they will prepare food. Give students copies of the Outdoor Cooking form and clarify the tasks. Allow 15-20 minutes for students to complete activity.	S.M.6
Putting a plan into action involves: division of work into jobs and responsibilities gathering of resources for completion of plan doing the work assigned checking progress on assigned work change and adjustment of work plan as needed	Circulate while groups are working and provide assistance as needed. At the conclusion of the activity have students report to the total class. Record ideas presented on large chalkboard or brown paper chart. When all specific information is reported, Ask:	
Evaluation of plans which were made and actions which were taken involves:	How are the outdoor settings similar? What are some general ideas that would be useful in any of the settings?	S.M.7

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
determining the extent to which goals were achieved determining the uses which were made of resources determining whether goals were those desired (Specific content which describes settings and resources appears in the support materials.) The outdoor food preparation settings vary in the extent to which they provide resources required for cooking, cooling, cleaning and serving food. When the outdoor food preparation does not provide the required resources, the individual who uses the settings for food preparation must provide the resources. The major way in which these resources are provided is through transportation of the missing resources, or their suitable substitutes, to the site.	What are some of the special considerations which apply mainly to one situation? **Pre-Teaching:** From the pictures used in the first experience, select 4-8 that illustrate people in action in an outdoor cookery situation. Review Directions for food for the Action bulletin board. Construct part one. Prepare transparency of car and human figure. Transition: The selection of foods which can be prepared in the several outdoor settings is a task which the food preparer must perform. Ask: What qualities might people want in the foods that are prepared outdoors? If several meals were to be prepared outdoors, are there some other qualities that might be desirable? Refer to pictures in the bull's-eye. Ask: What are the people in the picture doing? The body is active at all times. Some of the kinds of action go on involuntarily without the individual being aware of them. (breathing, heartbeat, digestion) Other activities are chosen by the individual.	S.M.8

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
The body uses foods to maintain the action (health). The food we eat contains chemical substances called nutrients that the body can use to carry out the action. There are several different nutrients which the body uses in special ways to maintain the action (health). No food contains all the nutrients needed by the body for good health - to maintain the action. The nutrients found in food work together for keeping the individual healthy.	Direct attention to the transparency of the car and the human figure. Ask: How is a car like a human being? Accept students' responses. Let's think about what it might be like to be a car? What does a car feel? If a car could talk what might the car say? Accept students' responses. How is a car like a human being? Encourage students to be spontaneous. Use additional questions for purposes of clarification. The comparison might incorporate some of the following ideas: How is a car like a human being? Both cars and humans need fuel. Fuel for a car is gasoline, and fuel for a human is food. But is fuel all a car or human needs? A car needs oil to lubricate it, and different kinds of oil for different purposes. What does a human need for lubrication? A human needs water for lubrication. How about maintaining a human body or a car? Some foods help to maintain our body. Grease maintains the gears, etc., in a car. Different oils are used for different purposes. i.e., transmission oil, engine oil Foods serve different purposes in the body. Some foods are for maintaining, some for fuel, and others for growth. Are some gasolines better for cars? Yes, premium is better for some engines, regular fits others, and unleaded is best for still others. What about foods for the body? Fat is the "best" energy food (fuel). Carbohydrate is the next best energy food, but can be used for energy, just as regular gas can be used for premium, but is not as efficient. Mineral and vitamins maintain the body. Do all cars use the same amount of fuel, oil and grease? No, different sized car engines use different amounts of gasoline, oil, etc. Large engines generally use more gasoline permile than cars with small engines. Gasoline use also depends on the number of cylinders, age of the car,	S.M.9

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	and the number of extra accessories. Do all people need and use the same amounts of food? No, the amount of food necessary for a human being depends on the size of the bones, weight of the person, and age. Can we find other things similar in a car and human being? The more one drives (uses) a car, the more gasoline, oil, and grease is needed, since gasoline is burned up, and more must be provided. The more a person uses the body (exercises) the more food is burned up, and more must be provided. Other ideas for the analogy can be taken from the conceptual content.	
One of the nutrients needed by the body to maintain the action if protein. The nutrient protein is used to build and repair the body tissues; skin, hair, fingernails, muscles, bones heal cuts, burns, replace blood Growth and repair is occuring at all times and a new supply of protein is needed daily. Foods which supply protein include: beef veal pork lamb poultry and eggs fish dried beans and peas peanuts and peanut butter Any protein rich food may be suited to outdoor preparation, provided the cook has sufficient time, equipment, and skill to complete the task. Maintaining the eating quality of protein foods is an important consideration in choosing protein foods.	**Pre-Teaching:** Prepare transparency Function of Protein. Assemble materials for part II of Food for the Action bulletin board. Transition: Direct students attention to transparency. Explain the function of the nutrient protein. Identify major food sources. Direct each group of students to find pictures of protein rich foods. Have students arrange the pictures or list of words into groups: suitable for preparation in assigned outdoor setting unsuitable for preparation in an outdoor setting. Encourage students to identify reasons for suitability or unsuitability. As the students work, circulate to the groups, and raise questions regarding the conditions required to keep meat wholesome and also question students concerning the cooking time and temperature required for preparation. Cookbook amy be used to supplement student knowledge. Students may report the findings to total class. When all groups have reported, Ask: What factors seem to make a particular protein rich food suited or unsuited to outdoor preparations?	S.M.10
	Pre-Teaching: Order and preview the filmstrip Sanitation: Rules Make Sense. Identify and prepare copies of 4-5 recipes in meat preparations.	S.M.31

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
The principal causes of food spoilage are: the action of naturally occuring enzymes in foods the decay, molding or fermentation of food is caused by the growth of bacteria, yeast and mold	Transition: Prevention of food spoilage is a part of food preparation whether it is done indoors or outdoors. Providing those conditions which will prevent food spoilage may be more difficult in an outdoor setting than in an indoor setting. The film will illustrate procedures to prevent spoilage in an indoor setting. Listen and watch for information that will be useful in presenting spoilage in an outdoor setting. View filmstrip. Following the viewing of the filmstrip, guide students in the identification of general rules. Ask:	
These microorganisms are found on the surface of food or in the tissues when the outer covering has been broken. Microorganisms are widely distributed in areas where food preparation takes place. When moisture, food and warm temperatures are present, microorganisms will grow and produce food spoilage and perhaps harmful toxins. Microorganisms find temperatures of 60-120 degrees F. ideal for growth. Microorganisms will grow more slowly at 40-60 degrees F. and 120-140 degrees F. Microorganisms are destroyed at 165-212 degrees F. Cooling below 40 degrees F. microorganisms are made active at freezing or below Freezing and blanching or boiling will inactivate enzymes. Salting and smoking meats inactivates enzymes and microorganisms to some extent. Canned meats and meat preparations are suitable for outdoor cookery when there is no refrigeration available. Uncooked meats and eggs are suitable for outdoor cookery when refrigeration at 40 degrees F. or below can be maintained until the meat is cooked. Uncooked meats cannot be	What conditions appeared to be related to the growth of organisms which cause food spoilage? What can be done to prevent food spoilage? What conditions can be changed? Following the identification of rules, give groups of students copies of the recipes. Direct them in completing the following tasks in regard to the recipes if they were to be prepared outdoors: handling and storage procedures before cooking procedures while cooking storage of prepared leftovers. Groups of students may report their procedures and explain reasons for choices. Students papers can be checked to determine their understanding of the principles. Following reports and clarification, identify the important ideas to remember when selecting meats for outdoor preparation. Record on chalkboard.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
safely stored at a temperature of 40 degrees F. or above for more than one day.		
Meat and meat preparations should be heated to above 165 degrees F. for 15-20 minutes and served immediately to avoid contamination and spoilage.		
To avoid spoilage, cool leftover cooked meats and food preparations containing meat quickly.		
Store cooked meats and food preparations containing meat at 40 degrees F. or below.		
Meat is composed of muscle tissue, connective tissue and fat.	**Pre-Teaching:** Order supplies to be used in experiments to be done by students and/or teacher.	
Muscle tissue forms the edible lean meat. Muscle tissue in its uncooked state is tender.	Collect current newspaper advertisements which name cuts of meat and give price per pound.	
Muscle tissues are bound together in bundles by connective tissue. Connective tissue is less tender in the uncooked state.	Transition: Display food advertisements which name cuts of meat and give price per pound. Direct students attention to display.	
The tendons and ligaments are examples of connective tissue which are tough.	Meat, fish and poultry supply protein which is needed by the body for growth and repair. Money which is spent to purchase meats may be wasted if the meat is poorly prepared and people are unwilling to eat it.	
The greater the amount of connective tissue in a cut of meat, the less tender it is likely to be.	Ask: What are the qualities of cooked meat that you enjoy?	
Fat tissue appears as an outer coating and within the muscle. Fat mixed within the muscles is called marbling.	Record student responses. Identify the parts of a cut of meat. Use an actual cut of meat such as a chuck steak to show various parts.	
Marbling located throughout the muscle adds to the flavor and juiciness of a cut of meat.	**Pre-Teaching:** Prepare copies of Cook and Learn About Meat. Refer to the opening questions and explain the experimental procedure. OR Carry out the cooking procedures involved in the experiments. The students can be involved in observation,	S.M.11

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	collection of information, and summarization of ideas. (If teacher demonstration is used, part of the section on firemaking may be integrated and cooking procedures can be performed on grill or camp stove.)	
When meat is heated the muscle tissue coagulates and becomes firmer and less tender.	In either case, familiarize students with the experiment and data collection procedure.	
Cooking meat at a low temperature until just at the stage of doneness desired will result in tender and palatable meat if there is little connective tissue in the cut of meat.	Perform experiments and guide students in recording results.	
Meat juice is retained when the meat is cooked at a low temperature until just done. A larger yield of cooked meat results because juice is retained.	When experimental procedure has been completed, guide students in drawing conclusions, Ask:	
	Let's look at the information which was recorded about each procedure.	
	What do you find with regard to weight of cooked meat?	
	What might explain the differences?	
Cooking meats at high temperature for long periods of time results in loss of juices and toughening of muscle tissue and connective tissue.	What do you find about the appearance of the different pieces? The tenderness?	
	What might explain the differences?	
Some cuts of meat are made up of large amounts of connective tissue which are not readily softened or made tender by heat alone. The cuts of meat which contain connective tissue include: chuck steak and roasts round steak rump roasts beef stew meat	**Pre-Teaching:** Order filmstrips **How to Cook Meats by Moist Heat** OR **Selection and Preparation of Meat Requiring Less Than One Hour.** OR Order supplies for demonstration of moist heat cookery method: braising or stewing	S.M.31
The connective tissue in these cuts may be softened in several ways.	Transition: The cuts of meat which were used in the experiments were tender. However, other cuts of meat are not tender and the connective tissue must be softened if meat is to be tender.	
	Direct students attention to filmstrip.	
Chemicals found in commercial meat tenderizers are effective in tenderizing less tender cuts.	As the filmstrip is viewed, identify procedures used and effects on cooked meat.	
Marinades; a blend of oil, seasonings, and acids, are used to tenderize meats by soaking for a specified period of time.	Following filmstrip or demonstration, record major ideas on chalkboard.	
Breaking the connective tissue into shorter strands by pounding, cubing, scoring, or grinding		

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
is an effective way of tenderizing less tender cuts such as hamburger, and cube steaks. Cooking less tender cuts with moisture and low heat for relatively long periods of time will result in a tender product. The cooking methods called braising or pot roasting are moist heat methods. Cooking meats in foil is a moist heat method. **of food to be cooked** smaller quantities of meat at room temperature require less cooking time than larger pieces at the same or colder temperatures **temperature of fire** a fire of medium temperature prevents burning and allows for more even cooking		
Minerals are another class of nutrients needed for normal functioning, growth and repair. Calcium and phosphorus are used in the formation of bones and teeth, and to maintain muscle tone. The primary sources of phosphorus and calcium are milk and milk products, dark green leafy vegetables, lima and baked beans. Iron is another nutrient necessary for good health. Most of the iron in the body is in blood in the red protein called hemoglobin.	**Pre-Teaching:** Prepare transparencies for vitamins and minerals. Collect pictures or food models of fruits and vegetables. Complete part III of bulletin board: food for the action. Through use of the transparency, explain the purpose for minerals and vitamins and identify food sources. Place the names or pictures of fruits and vegetables, milk in a container and have each student take one. Acquaint students with charts or textbooks which show the nutrients available from food sources. Divide and assist students as they determine which nutrients the particular fruit or vegetable contains. Report findings to the class and attach to bulletin board.	S.M.13
Making a fire and controlling the temperature of the fire is an essential part of successful outdoor cookery. Fuel, oxygen and heat are needed to start a fire. The major fuels used for outdoor cookery include: wood	**Pre-Teaching:** Review Outdoor Cooking Equipment. Assemble a camp stove and a charcoal grill and other equipment and supplies necessary for fire building. OR Arrange for a resource person to demonstrate and explain procedures or the teacher may demonstrate the procedures. If possible allow students to perform the temperature tests suggested in the support materials.	S.M.12

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
charcoal propane gas Other types of fuel used less frequently are white gasoline and kerosene. Primitive outdoor cookery uses a camp fire and fire ring to contain the fire. Most camp areas have regulations which restrict fire building directly on the ground. Less primitive outdoor cookery uses camp stoves and grills. Before using specialized equipment and fuels, become familiar with the procedures for their use. Special considerations for cooking outdoors includes: **temperature of the air** cold air temperature requires longer cooking time **size of food and temperature** Hemoglobin carries the oxygen to all the body cells. Lack of ability to carry oxygen results in: paleness, weakness, shortness of breath, lack of appetite, general slowing up of general functions (vital functions). Foods high in iron content are: meat, leafy vegetables, dried fruits, soybeans, egg yolks, molasses. Fruits and vegetables in the fresh state are as good a source of the nutrients which they contain as they will ever be. Fruits and vegetables which have the following characteristics are likely to be fresh and of good quality: color which is natural to the fruit	**Pre-Teaching:** Order a variety of fruits and vegetables which might be appropriate for preparation in an outdoor setting. Prepare copies of Cooking with Foil. Display fruits and vegetables. Explain and illustrate qualities which distinguish fresh, good quality fruits and vegetables from lesser quality fruits and vegetables. Distinguish among the fruits and vegetables those which	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
sound and and free from blemishes and bruises crisp and firm, not wilted or limp firm, not soft or overripe.	are least likely to be damaged by bruising; those which maintain quality without refrigeration or minimal refrigeration; those which are highly perishable and require refrigeration.	
The way in which fruits and vegetables are handled and stored will affect their quality.	Ask:	
Fruits and vegetables bruise easily. To avoid bruising handle gently, and as little as possible.	What vegetables whould you suggest including in a menu for a camping trip? Why?	
To retain the natural moisture of the fruit and retard spoilage, store all ripe fruits except bananas in refrigerated storage.	What fruits would you avoid taking on a camping trip? Why?	
To retain the natural moisture of vegetables, store at cool temperatures.		
Loss of moisture reduces firmness and crispness of vegetables.		
Store vegetables in the refrigerator except potatoes and onions, which may be kept in cold dry storage.		
A variety of types of equipment which utilize ice as a coolant are used to provide refrigeration in outdoor preparation settings.	**Pre-Teaching:** Collect various types of equipment or pictures which can be used for cooling food in an outdoor setting. If equipment is not available, use pictures of a similar type.	S.M.14
Portable refrigerators or coolers with the following characteristics provide for effective cooling and easy transportation: metal or plastic exteriors smooth metal or plastic interiors insulation of expanded plastic or similar material between the interior and the exterior tightly fitted cover to retain cold light weight few gadgets or metal parts to rust	Prepare copies of menus proposed for outdoor preparation. Display the coolers. Direct students' attention to equipment. Show several types of coolers and identify features which contribute to ease of care and effective use. Students may examine and note characteristics of different items.	
Ice for cooling can be prepared at home or purchases.	Provide students with copies of menus proposed for outdoor preparation, Ask:	
The more surface exposed to the air, the faster ice will melt.	What equipment would be required to provide proper storage for the foods in the menu? What alternative forms of the food might be used if appropriate storage were not available? As students report, identify the location in the cooler which will provide the most effective cooling.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
A solid cake of ice will melt more slowly than an equal amount of ice cubes.		
Ice cubes frozen in plastic bags or milk cartons will form a solid block and will melt without dripping. Melted ice water can be then used for drinking or cooking.		
The most easily spoiled foods such as fresh meat, butter, etc., can be stored in tightly sealed containers (foil, plastic) or stored near the ice at the bottom of the box, where temperature is coldest.		
Fruits and vegetables which require cooling can be stored further from the ice.		
Glass requires longer to chill because it retains heat longer than metal. Foods stored in glass (i.e., beverages, dressings) should be chilled before they are placed in the cooler to reduce the melting of the ice.		
The goal of preparing fruits and vegetables, is to preserve the natural nutritional value of the product.	**Pre-Teaching:** Order materials for demonstration of foil cooking and supplies for student laboratory experience in foil cooking of fruits, vegetables, meat and vegetable combinations and meat products.	
To retain the quality of the fruits or vegetables and remove harmful materials (soil, sprays, and microorganisms) wash the fruit or vegetable thoroughly.	Review Cooking in Foil.	S.M.15 S.M.16
Vitamins A, C, D, and riboflavin are sensitive to visible light. To avoid loss of these nutrients from fresh fruits and vegetables, the following procedures are recommended: prepare the food shortly before the fruit or vegetable is to be eaten cover or protect the cut surfaces from air and light	Demonstrate the procedures for cooking with foil utilizing fruits and vegetables. Explain effects of procedures recommended for preparation of fruits and vegetables on retention of nutrients and quality of prepared food.	
Nutrients which are stored directly below the skin of the fruits and vegetables are lost or wasted when a peeling which		

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
is thick is removed. To avoid this loss, use the food with the skin left on or remove only a thin peeling.		
Some nutrients are water soluble. To retain those nutrients avoid soaking vegetables in water.		
Skewer cookery has been and continues to be a method of food preparation in outdoor settings.	**Pre-Teaching:** Assemble examples of skewers, including a coat hanger skewer and a stick.	
Skewers, made of stainless steel or heavy wire, are readily available and inexpensive. (a coat hanger can be bent if nothing else is available)	Skewers of various lengths can be used to illustrate the relationship of length of skewer to ease and safety in use.	
	Order foods required for demonstration of skewer cookery.	S.M.17
Skewers made of metal wire conduct heat; therefore, care should be taken when handling the skewer to prevent burns.	Assemble pictures and recipes of combinations of foods which can be successfully prepared by grilling on a skewer.	
Skewers made of green, sweet woods (maple, birch) are not likely to burn or impart an unpleasant flavor to the cooked food.	Transition: In prehistoric times, our ancestors broiled meats and roots over wood fires and used straight sticks of green wood to hold the foods. They then pulled off the food and ate it.	
When threading a skewer, be careful to pierce each chunk of food through its center of gravity. This will prevent the pieces from flopping when the skewer is turned.	Later on, when swords and sabers were made of metal, they were used for the same purpose.	
	Restaurants now call this method of cookery (vegetables, meat or other food on a skewer) shish kabob or en brochette.	
Lean meat is usually cut 2" in size, tomatoes and onions are easiest to use when cut in wedges, and most other fruits and vegetables are cut into chunks.	Show students a variety of skewers.	
	Students may examine examples for ease in handling, turning and removing food.	
	Identify characteristics which make skewers safe, appropriate equipment for cooking.	
	Demonstrate threading a skewer and explain reasons for procedures used.	
The various chunks are alternated on the skewers until the desired amounts of food have been added.	Display pictures of food combinations which can be prepared by skewer cookery.	
	Refer to pictures and explain why certain foods are often prepared by grilling on a skewer.	
The skewers should not be overcrowded, since the kabob elements will be more evenly cooked if a little space is left between them.	Students may have a laboratory experience using skewer cookery.	
Foods with widely different		

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
cooking times are best cooked on separate skewers. Skewer cookery may be used to prepare a variety of foods. Vegetables such as: mushroom caps, green peppers, zucchini, and small potatoes make excellent kabob companions. Some vegetables which would take too long to cook over a grill, could be par-boiled before grilling on a skewer. Most fruits which are palatable when cooked, cook quickly and can be prepared on a skewer. Tender cuts of meat or meats which have been tenderized may be prepared by grilling on a skewer. A marinade is often used when cooking meat and vegetables on a skewer. A marinade is a blend of the following ingredients: oil, seasonings, and acid foods such as lemon juice, vinegar, wine or tomato juice. It is used to sharpen the flavor of meat, and sometimes to tenderize it before grilling. Some less tender cuts of meat can be tenderized by prolonged marinating (2-3 days) but most need left only a few hours in the marinade. The nutrient called **Carbohydrate** is used by the body to supply energy for work and play as well as body heat. Energy is needed for: internal activities such as digestion, heartbeat, and breathing external activities such as running, writing, playing and eating Foods which are sources of carbohydrates are cereals grains and products made from cereal grains.	**Pre-Teaching:** Prepare part IV of bulletin board. Secure copies of camping books and outdoor cookery books. Transition: Direct students attention to bulletin board. Explain the function of the nutrient carbohydrate. Ask: What are some activities which require energy? Refer to pictures in center of bulletin board. Continue: Foods which contain starches and sugars are the sources of carbohydrates. Write the following statement on transparency or chalk-	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
Cereal grains used in foods include: wheat rice corn barley oats rye buckwheat	board: "CEREAL GRAINS AND FOOD PRODUCTS MADE FROM CEREAL GRAINS SUPPLY CARBOHYDRATES." Ask: What are the names of cereal grains used for food? List responses on transparency or visual.	
Cereal grains are combined with other foods in a variety of food preparations including: casseroles or hot dishes: the cereal grains form a major part of the dish quick and yeast breads; the flour made from the cereal grains are a major part of the preparation cakes, cookies, and pastry; the cereal grains form a major part of the preparation, and sugar is an added source of carbohydrate	Divide students into small groups. Explain the following task to groups: develop a list of 15-30 food preparations which contain one or more cereal grains the cookbooks and other resource materials may be used. Allow time for students to complete task. Circulate and encourage students to identify different types of food preparations which use cereal grains. Continue. What food preparations did you list? Record responses. Which of these foods require a similar type of preparation? Identify types of preparations.	
Preparing a cereal grain product for casseroles or main dishes in an outdoor setting follows the same principles as for preparation outdoors.	**Pre-Teaching:** Assemble cookbooks. Prepare copies of Study Guide For the Preparation of Carbohydrate Foods.	S.M.18
Cereal grains such as rice or products made from cereal grains such as noodles, and other pasta products absorb water when they are cooked. They swell from 2-4 times their original volume. i.e., 1 cup of uncooked rice yields 3 cups cooked rice. 1 cup of uncooked macaroni yields 2 cups cooked macaroni	Transition: Cereal grains in the form of pasta products are used in main dishes and casseroles. Foods of this type can be prepared in an outdoor setting. Show examples of various uncooked pasta products and rice. Identify the approximate yield from one cup of uncooked rice.	
The appearance, texture and taste of a pasta product or rice is affected by the procedures used to cook the product. To produce a product which has a distinct shape, is tender	Demonstrate the preparation of a pasta product. Explain the effect which each procedure has on the quality of the cooked product. Plan a laboratory experience with students which will allow them to utilize precedures for preparation of pasta or rice. During the laboratory experience students can collect information regarding the amount of time and types of equipment required for preparation and cleanup.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
and has a fully developed flavor the following procedures are suggested: heat a large amount of water to boiling add salt, equal to 1 tsp. per quart of water gradually add pasta product to boiling water cook uncovered, stirring occasionally until cooked tender	Following the laboratory experience record information collected by each group on the chalkboard. Ask: What do you notice regarding the time required for preparation of the various products? What do you notice about the equipment required?	
Test for doneness by biting a piece. It is done if it is firm all the way through, but not hard in the center.	If these products were to be prepared at a campsite would there be any differences in time required? Why? Is equipment available for use?	
Drain immediately and serve or combine with other ingredients.	What general guidelines can be suggested when choosing casserole or main dish recipes for outdoor preparation?	
If pasta is to be served cold, or chilled in a salad, rinse immediately in cold water. This procedure removes starch and prevents individual pieces from sticking to each other.		
To prepare rice, follow the same precedure. A rice grain, when cooked will be soft when pinched between the thumb and forefinger. No hard core will remain.		
Yeast breads may be prepared in the indoor setting and transported to the outdoor setting.	Pre-Teaching: Secure a grill to use in demonstrating the method of two pie pan cookery quick breads.	
Similar ingredients are used in the preparation of quick breads such as: pancakes biscuits coffee cakes muffins	(If students are unfamiliar with standardized recipe and terms used in preparation of batters and doughs, re-teach this aspect of food preparation.) Prepare copies of basic biscuit mix and variations. Transition: Yeast breads and quick breads are good sources of the nutrient carbohydrate.	S.M.19 S.M.20 S.M.21
Varying the proportion of liquid to dry ingredients and the methods of combining ingredients, affects the texture, volume and appearance of the bread product.	Yeast breads require 3-4 hours for preparation from ingredients; therefore, they may not be well suited to outdoor cookery. Some quick breads may be successfully prepared in the outdoor setting with indoor cooking utensils.	
The addition of small quantities of other ingredients such as egg, sugar, and flavoring, affect the taste and color of the product.	Familiarize students with basic recipe and technique for preparation of mix. Assign or select groups of students to prepare each of the variations.	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	Direct attention to equipment needed for preparation, time required for preparation and clean up. Use observation sheet for preparation of carbohydrate foods to collect information. Each group may sample their own preparation and prepare an oral report on the appropriateness of that preparation for outdoor settings.	
Desserts are foods which contain a relatively large amount of sugar. Some desserts also are high in fats. Desserts are foods which give a sense of being well fed. They may produce a feeling of fullness. Desserts may be grouped according to the principal method of preparation and/or the major ingredients. cooked or stewed fruits baked fruits gelatins baked batters and dough frozen desserts starch thickened milk desserts	**Pre-Teaching:** Assemble recipes for the following types of desserts: cooked fruit gelatin cookies cakes pies milk puddings. Transition: Write the word "DESSERT" on the chalkboard. Ask: What are several of your favorite desserts? Record responses. Continue. In what ways are the foods listed alike? Are the foods called desserts different from breads? Vegetables? Is a vegetable ever part of a dessert? How do you feel when you have eaten your favorite dessert? Direct student groups in the completion of the following task. Choose one of the cards from those in the box. Read the recipe. Answer the following questions: What equipment would be needed to prepare this dessert? If the dessert were to be prepared in the outdoor setting your group has been assigned, what problems might arise? How could those problems be solved? Allow time for students to complete the task. Students may report their ideas to the class. At the conclusion of the reports, Ask:	S.M.31

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	What general guidelines can be suggested in choosing desserts for outdoor preparation?	
	Assign groups of students to prepare sample desserts. Use outdoor equipment if possible.	
	Students may serve and sample desserts in a buffet arrangement.	
Many animal products such as butter, cheese, cream, eggs, meats and milk contain fat.	**Pre-Teaching:** Prepare part V of bulletin board.	
	Transition: Explain the function of the nutrient fat.	
Some plants store fat in fruits, seeds and see grains. Plant foods high in fats are: nuts wheat germ avocados	Identify foods which supply fats.	
Fats spoil easily (become rancid) and need to be stored in a refrigerated area.		
Water is a nutrient essential to life. It is second only to oxygen in vital importance.	**Pre-Teaching:** Divide class into pairs. Prepare copies of Beverage Comparison Chart. Assemble samples of various kinds of beverages and nutritional labels from beverage containers.	S.M.23 S.M.22
Human beings can survive without water for two or three days.	Complete part VI of bulletin board by preparing an arrow shaped label entitles WATER.	
Water acts as a solvent and carrier of many nutrients.	Transition: Refer to Bulletin Board. Attach arrow shaped labels.	
Water also is a solvent for waste materials produced by the body.	Identify the functions of water.	
	Identify major sources of water.	
For good health, a balance between water loss and intake is needed.	Transition: Display a variety of beverages, and or beverage containers with nutritional labels. All beverages help to meet the body's need for water, and contain a high percentage of water.	
Water is lost by evaporation from the skin, urinary loss, and respiratory loss.	However, some beverages also provide other nutrients. You and your partner will be given a beverage. Your task is to assemble information regarding nutrients which the beverage contains and cost per serving of the beverage.	
Water intake occurs through drinking liquids and eating foods.	Familiarize students with chart and nutritional labels.	
All foods contain some water. Foods high in water content include beverages, foods prepared from milk, and juicy fruits and vegetalbes.	Distribute a beverage container and nutritional label to each pair of students.	
Beverages are drinks that quench the thirst.	Circulate to groups of students and provide assistance in collecting information from the nutritional label.	
	Check the information assembled by students for	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	accuracy. Have each pair of students record information on overhead transparency or large paper chart similar to their recording form.	
	Direct attention to the completed chart. Ask:	
Milk is a good source of several of the nutrients needed by the body. milk is the leading source of calcium, which is needed for bones and teeth. It also provides protein, riboflavin, vitamin A and other nutrients. teen-agers need 4 or more cups of milk per day.	What do you find in regard to the nutrients supplied by...	
	Compare the nutrient contributor of various beverages.	
	Which beverages provide fewest nutrients?	
	Which beverages provide proteir ?	
	Which beverages provide only carbohydrates?	
	Explain the procedures to be used for determining cost per serving.	
	Circulate the costs and provide assistance in determining cost per serving.	
	Record information on classroom chart. Direct attention to chart.	
	Ask:	
	What do you notice about the beverages when both cost and nutrients supplied are considered?	
	Encourage students to formulate statements which accurately describe the relationships of cost and nutrient supply.	
	Transition: Nutrition and cost are two factors which may influence the choice of beverage.	
	What other factors might be considered when choosing a beverage which will be prepared and served outdoors?	
	Transition: Milk is a beverage which is used for drinking and/or a liquid in other food preparations.	
	Explain procedures for storing milk to preserve quality.	
	Demonstrate and explain the procedures for preparing hot milk beverages.	
Fresh milk is highly perishable and special attention must be given to some cold storage procedures when one cooks outdoors. Store in coldest area of storage container.		
Non-fat dry milk requires no refrigeration until liquified. The procedures for the storage of liquified non-fat dry milk are similar to those used for fresh milk.		
The appearance and palatability of beverages prepared with hot milk are affected by the method of preparation.		
When milk is heated a film composed of proteins, minerals, and fats forms on the top of milk as it is being heated, a film is eliminated by beating the mixture with a rotary egg beater.		
A double boiler can aid in the prevention of film, since the effect of heat is lessened when the food is not on direct heat.		
When milk is combined with acid, the protein clumps together or curdles.		
Fresh fruits containing acid such as strawberries may produce curdling when combined with milk in cold beverages.		

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
	Pre-Teaching: Prepare copies of On Your Mark. Prepare transparency of proposed menus for outdoor preparation.	S.M.25
	Transition: Refer to bulletin board. The bulletin board can serve as a guide in selecting foods which will provide the nutrients needed to maintain health.	
	Refer to transparency of menus.	
	Does this menu combine foods which will provide some of the nutrients needed?	
	How might the menu be changed to add vitamins and minerals?	
	Which foods provide protein?	
	Which foods provide carbohydrates?	
Color, flavor, texture, temperature, size and shape are qualities of foods which influence the individual's preference among foods.	The color, texture, flavor and appearance of foods influence our willingness to eat foods and food combinations.	
	Would you find the combination of foods in the menu appealing? Why? Why not?	
	Give students copies of On Your Mark. Continue.	
The preference of individuals for particular qualities in a food or food combination, varies with individuals	Plan three menus which can be prepared in the outdoor setting your group has been assigned.	
	When students have planned 3 menus, have each group write one of their menus on the chalkboard.	
The cultural background appears to influence the individual's preference for foods and food qualities.	Direct students in consideration of the menus for nutritional adequacy and sensory appeal.	
Some contrast in color, flavor, texture, temperature, size and shape may be somewhat more appealing to people.	Hamburgers are widely eaten in the United States. Raise your hand if you like hamburgers.	
	What qualities does a hamburger have which you would rate as good?	
	Compare students responses.	
	Transition: Brainstorm special considerations for meal preparation outdoors. Write ideas on the chalkboard. Do not express approval or disapproval. When listing is done, continue.	
	Select one of the menus the group has developed and consider whether it is feasible to prepare this menu as a class experience.	
	Inform students as to time, transportation and travel limitations.	
	Pre-Teaching: Collect a number of magazine pictures and cartoons which illustrate food service and eating in out-	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
The following conditions appear to be related to the enjoyment of food preparation and services: cleanliness of the setting wholesomeness of the foods comfort and ease experienced while preparing and eating foods pleasant surroundings and informality of the setting.	door settings. Slides or pictures of family or groups in the outdoors (picnic, camping) might be brought by the student and shared with the class. Direct student's attention to several illustrations. Ask: What factors help to make outdoor food preparation and eating enjoyable? What conditions detract from the enjoyment of outdoor food preparation? Record responses. Ask?	
Cleanliness, in the service of food contributes to the enjoyment of the food and safeguards the health of those persons who eat the food.	Which of these ideas seem to belong together? Why? Are there other ideas that appear similar? Transition: Cleanliness in the preparation of food safeguards the health of those people who will eat the food.	
Microorganisms are found on insects, hands, mouth, nose, throat discharges, hair, and surfaces of equipment such as grills, tables, and water pumps.	Clean surroundings also adds to the enjoyment of the outdoor food preparation experience. Identify sources of microorganisms in the outdoor food preparation area.	
Moisture, food and warm temperatures are conditions which help microorganisms grow and produce spoilage and toxins.	Explain the conditions which allow microorganisms to grow.	
To safeguard against the spoilage of food and/or production of toxins by microorganisms several actions may be taken: prevent the microorganisms from getting into the food prevent microorganisms from surviving in the area of food preparation, dish and utensil storage and serving prevent microorganisms from producing toxins	Identify the actions which can be taken to safeguard against damage by microorganisms. In the groups have students suggest "bright ideas" that would keep microorganisms from getting into foods being prepared and served Bright ideas can be recorded on light bulb shaped colored paper and displayed around the room or compiled on a large light bulb shaped chart and displayed on bulletin board.	
Keep hands and fingers out of food whenever possible. This minimizes contact of possible germ surfaces with food.		
Do not cough, sneeze, or clear mouth or nose near food or dishes. Use disposable tissue to cover mouth, as it prevents germs from reaching foods. Sprays and insecticides keep the outdoor area free from insects.		

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
To keep a grill clean after every cook-out, wipe clean with damp cloth or newspaper. Use a scouring brush only when necessary.		
Dispose of garbage after each meal. Use an available trash can or if no trash can is available, most garbage can be burned.		
An alternate way to care for garbage is to carry plastic bags along and haul it back home when the cook-out is over.		
Empty cans, bottles, and paper cartons need to properly disposed of in a trash can.		
A variety of equipment and materials are available for use in preparing and serving an outdoor meal.	**Pre-Teaching:** Assemble dishes and flatware made from a variety of materials: paper, vinyl, plastic, cloth, wicker, metal, glass	
The customary manner of eating foods included in a menu serves as a guide to the selection of eating and serving utensils.	Prepare a sample menu for outdoor cooking or select one of those written by the students. Show menu and explain the meaning of the phrase, "People are creatures of habit in reference to customary eating habits." i.e., mashed potatoes usually eaten with a fork, in the outdoors also eaten with a fork hot dogs are finger foods, indoors and out	
The food decision-maker can select simple or elaborate equipment, which is inexpensive or costly. The preference of the individual and those that will share the meal are the main considerations.	Direct students in completion of the identification of types of utensils required for serving and eating foods in the sample or student menu.	
Dishes and flatware are available in a variety of materials which vary in terms of the following characteristics, which influence preformance: weight (heavy-lightweight) conduction of heat (transfers or does not transfer) stability (ridgid or flexible) moisture penetration disposability durability	Direct attention to the display of tableware. Students can identify the types of materials they would choose to use for the particular menu in their assigned setting. Complete remainder of Get Ready. As students report their choices, explore the reasons for the choice and relate to performance characteristics of materials and performance features desired.	S.M.26
Matching performance characteristics of utensils to the performance desired will contribute to the comfort and con-		

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
venience of those persons sharing the meal.		
Types of table or food service which are efficient and comfortable contribute to the satisfaction and enjoyment experienced.	**Pre-Teaching:** Prepare copies of support material.	
	Transition: Explain procedures for buffet service.	S.M.27
Buffet service involves the serving of food from a separate table or area that has been arranged for serving. Individuals serve themselves and are seated at a different location.	Explain and illustrate meaning of family service. Compare with buffet service for differences and similarities.	
	Students can complete all of the appropriate parts of Get Set to the cleanup section.	S.M.28
Buffet service can serve a large number of people efficiently.	Assemble pictures of outdoor food preparation settings which have been cleaned.	
Family service involves the arrangement of foods on a table or in an area where it will be eaten. Individuals are seated at this table and serve themselves from the arranged dishes.	Transition: Give each group of students a picture of an outdoor setting.	
	Look carefully at the picture.	
	What clean-up tasks were done in order to produce the appearance you see?	
	List responses in chalkboard.	
Outdoor cooks need to keep cookout sites, whether in the back yard or at a state or national park, as clean and neat as they would like to find them. Cleanliness and orderliness adds to the enjoyment of everyone.	Have students think through dishwashing procedures for outdoors.	
	What equipment is available?	
	What about water supply?	
	What supply will be needed?	
If there is no receptacle for the disposal of refuse, it can be burned, buried, or even carried home. Used cans, wet papers and crumpled foil do not add to the view.	What equipment will need to be washed?	
	How is this equipment stored?	
	If items are left to be air dried, what care must be taken with these items?	
A neat cook-out site is free of scraps of paper, remains of cigarettes and dirty cooking utensils.	What safety precautions need to be taken with any fire? Regardless of the fuel? Why is it important to be sure the fire is "out" before leaving the site?	
Dishes should be washed at once after an outdoor meal. If there is no not water, it can be heated over the grill, or dirty dishes can be carried home, if no water is available.	Complete remainder of Get Set. Work with students to finalize all parts of the decision-making for their outdoor cooking experience.	
	The Go sheet can be used as a form of feedback to the student groups. Include positive comments, questions, suggestions, and reminders. It is to serve as the O.K. for the outdoor menu.	S.M.29
The arrangement of equipment to be used in washing dishes affects the efficiency with whom this task can be completed.	Students are to complete the culminating laboratory experiences and self-evaluation. Upon completion of the group self-evaluation share with the class and summarize strengths and areas for improvement. Encourage class	

CONCEPTUAL CONTENT	PUPIL-TEACHER INTERACTION	SUPPORT MATERIAL
When cooking on a campfire is done, the fire should be extinguished with water (drenched) and the embers stirred into the mud, so it cannot start again. If cooking on a grill,put the charcoal into a large pail and douse with water, and cover tightly. Dry thoroughly before re-using. Coals can be left in the firebox and covered with an ash can lid to choke the fire.	members to share feelings about the outdoor experience.	S.M.30

S. M. 1 NOTES TO THE TEACHER

Students who are interested in this mini unit will be looking forward to the preparation of food outdoors. However, there are several factors which will influence whether such experiences can be provided.

1. Friendly weather conditions enhance the enjoyment of experience in outdoor cookery.
2. Equipment which is suitable or can be adapted to outdoor food preparation adds to the reality of the experience.
3. Space which can be utilized for outdoor food preparation and service. Involvement of students in determining the availability of equipment and space in community outdoor settings adds to the reality of the experience and differentiates it from indoor cookery.
4. Periods of time long enough to experience outdoor food preparation in the outdoor setting on one or more occasions. A 2½ to 3 hour time period seems to be required if the site is located at any distance from the school.
5. Transportation to an outdoor setting.

With these factors in mind, the following method of organizing students for several outdoor food preparation experiences is suggested:

Divide class into groups of 3, 4, or 5 students depending on the size of the class. Assign or cooperatively select a particular outdoor setting for which each group can plan, prepare and serve food. If class size numbers 15 or more, several groups of students may be assigned the same type of outdoor setting.

Student groups (composed of 4 students)	Description of Outdoor Settings
A. B.	I. Picnic to be held outdoors. One or more foods to be cooked outdoors. Other foods to be prepared indoors and transported to the site. Site may be within walking distance or transportation by bus or car, if available.
C. D.	II. Backyard cookout. One or more foods to be prepared outdoors on grill. Other foods to be prepared indoors and transported to the site. Site may be within walking distance. School patio or lawn area may be suitable or parents may wish to volunteer a space at their home.
E. F.	III. Camping (simulated or actual meal preparation at camp site). Major foods in the menu to be prepared outdoors. Simulated campsite might contain a grill or fire ring or a camp stove could be used.

Each of the groups of students will plan, prepare and serve one meal in their assigned setting. To insure that all students will have some experience in several types of settings, the students in groups A, B, and C can have as their guests on the day of the experience, students from groups D, E, and F, respectively. Groups D, E, and F will have as their guests students from groups A, B, and C in return. This organization will allow the students to experience planning, preparing, and serving of a meal to a group of 6-10 persons, and will also permit students to experience to some extent the food preparation and serving in another setting.

The general principles of food preparation used in outdoor cookery are the same as those used for food preparation in an indoor setting. The major differences in food preparation tasks outdoors appear to be in the management of equipment, supplies and work areas. Experiences in the unit acquaint students with basic principles and then to permit them to plan for the preparation of foods in a particular outdoor setting. Near the end of the unit groups of students will prepare and serve one of the menus they have planned for the particular setting. Throughout the unit students will have the opportunity to prepare and taste foods as a means of understanding the principles of preparation involved.

S. M. 1 ORGANIZATION OF EXPERIENCES IN MINI UNIT: SIX WEEK PLAN

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
What is Outdoor Food Preparation?	Prepare Food Outdoors. Who? Where? What? How? When?	Prepare Food Outdoors.	Food for the Action.	Preparing Safe Protein Foods.
Cook and Learn About Protein Foods.		Making and Controlling A Fire for Outdoor Cookery.	Vitamins and Minerals for the Action.	Cooling Foods to Prevent Spoilage.
Preparing Fruits and Vegetables.	Foil Cookery.	Combining Vegetables and Meat. Foil Cookery.	Combining Vegetables in Skewer Cookery.	Fruits and Meat.
Carbohydrates: Foods Which Provide Energy.	Preparation of Pasta Products.	Managing Time, Equipment and Energy.	Quick Breads Adapted to Outdoor Preparation.	Beverages.
Sanitation in Outdoor Food Preparation.	Planning Menus for Outdoor Food Preparation and Service.		Food Service Outdoors. Planning Equipment, Supplies and Work Responsibilities.	
Preparation and Service of Food in an Outdoor Setting.			Evaluation of Experiences.	

S. M. 2 MYSTERY GAME (CONCEPT OF OUTDOOR FOOD PREPARATION SETTINGS)

1. Assemble a set of pictures of outdoor food preparation activities and settings. (Camping, picnicking, backyard cookout.) Mount on colored construction paper. The following periodicals are a source of pictures of outdoor settings: Woman's Day, Family Circle, Coed, and Forecast. Spring and summer issues of camping and backpack magazines are also sources of pictures.

2. Compile a set of pictures of indoor food preparation activities and settings. (Simple to elaborate kitchen settings and dining areas.) Mount on colored construction paper.

3. Cut each mounted picture into an irregular half (as in a puzzle).

4. Direct students to randomly select a piece from the total set of pictures.

5. Each student is to match her/his half of the picture with that half which has been chosen by another student.

6. Once a pair of students have matched their picture halves they are to find other pairs of students who have pictures illustrating similar ideas of food preparation settings.

7. When students think they have located all the pictures which belong to their group, the pictures can be displayed on a bulletin board or other large surface.

8. Students in each group are to explain and clearly identify the similarities which the illustration share.

9. Continue grouping until the concept of outdoor and indoor food preparation activities and settings has been developed.

10. Grouped pictures and appropriate titles may be made into a display.

S. M. 3 OUTDOOR FOOD PREPARATION EXPERIENCES

Name _____

Directions: Read each short statement and mark a check (X) in the column which best describes your experience.

Statement	Never	1 time	3-4 times	6 or more times
1. I have prepared food for myself and/or others in an indoor setting.				
2. I have prepared food for myself or others in an outdoor setting.				
3. I have prepared food over an open wood fire.				
4. I have prepared food on a camp stove.				
5. I have prepared food on an outdoor charcoal grill.				
6. I have eaten food in an outdoor setting.				
7. I have camped overnight and helped to prepare food outdoors.				
8. I have gone backpacking.				
9. I have planned food for a picnic.				
10. I have planned food for an overnight camp-out outdoors.				
11. I have been responsible for the disposal of garbage in an outdoor setting.				
12. I have helped with washing of dishes in an outdoor setting.				

Other experiences which I have had in food preparation or serving in an outdoor setting are:

S. M. 4 OUTDOOR EQUIPMENT

Indicate the types of outdoor food preparation equipment your family has by checking (X) in Column I. Place a check (X) in Column II if you could bring this equipment for class use.

Type of Equipment/ Resources	Column I Yes, family owns.	Column II Yes, I could bring to class.
Portable Charcoal Grill		
Camp Stove		
Cooler or Refrigerated Box		
Thermos Jug or Insulated Bottles		
Nested Cookset		
Reflector Oven		
Dutch Oven		
Tongs		
Skewers		
Slides or Pictures of Family in Outdoor Setting		

If your family cooks outdoors or if you know someone who cooks outdoors or camps, would they be willing to talk to our class? Please list the names of persons who might be willing.

S. M. 5 A TALE ABOUT A COOKOUT

The gang (Mary, Sue, Paul and John) had planned to have a picnic on Saturday. They decided it would be fun to have a cookout and go to the nearby state park to hike before cooking lunch. Each person was to be responsible for part of the meal and bring the equipment needed to prepare and serve it.

John said that he was a good fire builder so he would do that. Paul said he liked to cook meat and potatoes so he and John would take care of that part of the meal. Mary wanted to bring biscuits to cook over the fire and Sue then volunteered to bring the dessert, some S'mores (graham crackers, chocolate bars and marshmallows) to toast on the fire. Each agreed to bring their favorite soft drink and Mary said she would bring some ice for cooling.

The day of the cookout dawned bright and beautiful. John drove and stopped to pick up each of the others. With everyone bringing food and equipment, it seemed as if the car would hold little more. John remarked, "I hope no one has forgotten anything." Everyone said, "No, let's get going."

They arrived at the park and found a good spot for their cookout. They began unloading the car so that everything would be ready after their hike. Mary said, "Here is the ice." She held up a plastic bag full of ice cubes. Paul, "What are we going to put it in?" The group of four looked at each other. No one had remembered to bring a cooler or ice container. Mary said, "Well, maybe it won't all melt before we need it. I'll put it back in the paper bag until later."

Off on the hike. It was great. The group returned tired and hungry. John started to build the fire. Firewood was nearby and the fireplace was easy to fix. John was ready to light the fire. "Who has some matches?" "I don't," the others responded. Luckily another group of people were nearby, and they were able to borrow matches from them. The fire didn't start right away. John said, "Does anyone have some paper or kindling?" After searching the area some small dry twigs were found and the fire was burning. Everyone was really getting hungry.

As John was busy with the fire, Paul was making the hamburger patties. He was going to cook the hamburgers in foil with sliced potatoes and carrots. He measured out one strip of foil and wrapped a pattie and the vegetables and then another. When he came to the third pattie there was only a strip of foil 3 inches wide left. Paul shouted, "Hey, does anyone have more foil? I didn't bring enough." No one had any foil. So only two patties were put to cook.

Mary said, "Oh well, we'll have lots of biscuits and can share the other stuff. Help me find some long sticks to cook the biscuits on." The biscuits were to be wrapped on sticks about 3 feet long and 1 to 2 inches in diameter. They would be cooked by holding over the coals and turning slowly. Mary found two sticks on the ground near the fireplace but didn't want to use

S. M. 5 (cont.)

them because they were dirty. Finally they found some bushes that would provide just the right kind of sticks. Luckily John had a pocket knife to cut them with because no one else had thought to bring a knife.

The biscuits were wrapped and put to cook. The two packages of meat and vegetables were cooking. Now to get the plates and eating utensils out. Sue said, "Who was supposed to bring the plates and stuff?" Mary answered, "Each one of us was to bring whatever was needed to eat the food we were preparing." Paul said, "Gee I forgot and only brought a plate and fork for myself. Maybe we can all use it."

John said, "Let's have some pop while we wait for the stuff to cook." Mary brought out the warm pop and bag of ice she had purchased. The ice was almost all melted. It really didn't matter since no one had remembered drinking cups and there was no way in which the ice would fit in the pop container. The four hungry and tired friends sat down around the fire and waited for the food to cook. In about 10 minutes the 2 meat patties and vegetables were ready. They were eaten right out of the foil wrapping. Sue said, "That really tasted good. I was so hungry. I wish there were more still cooking." John agreed. Mary said, "Let's try the biscuits." The group took one of the biscuits and found it was only partly heated. They shared the cooked part and added wood to the fire to speed up the cooking. Paul said, "What's for dessert? Maybe we can eat that while the biscuits cook?" Sue answered, "Well we need more sticks to toast the marshmallows and then we can eat the S'mores." The group went off to find some more toasting sticks. In about 5 minutes they returned and found the fire blazing and the biscuits burned on the side near the fire.

Paul and Mary said, "Let's pack up and go home." John said, "O. K. I'll put the fire out and the rest of you pick up the stuff and take care of the garbage." There was a pump nearby but no container in which to carry the water. John searched in his car but there was nothing there that could be used. Sue said, "Let's use the pop containers. It will take more trips but at least we will put the fire out." The group of four made several trips from the pump to the fire and finally put it out.

On the trip home they ate the marshmallows, chocolate and crackers. Mary said, "This tastes pretty good. But it would have been really good if they had been toasted and warm. We can do that next time." No one answered Mary's comment.

1. In what ways would you consider the cookout successful? Why?

S. M. 5 (cont.)

2. What might have been done to make the cookout more successful?

3. What resources were forgotten?

S. M. 6 OUTDOOR COOKING

Group Members

_____ _____

_____ _____

Think about the Tale About a Cookout we read the other day. To avoid similar problems and have a successful experience, we need to become familiar with different types of outdoor food preparation settings and the resources they provide.

Using the materials in class and your own knowledge, each group is to find out as much as you can about the setting you have been assigned, and REPORT to class TOMORROW.

Use the questions and situations below to start your thinking.

Pretend that a person from another country is part of your group, and that he/she has never been on a _____. What are five ideas your group would tell that person to help her/him understand what to expect?

1.

2.

3.

4.

5.

How would you prepare AND serve the following foods in the outdoor setting your group has been assigned? Fresh sliced oranges, pancakes, butter and syrup, bacon, cocoa.

Did you think about food storage and cleaning after preparation?

List the resources that would be found at the setting where the meal would be served and prepared. (Using above menu.)

List the resources that would have to be brought to the setting if the meal were to be prepared, served and clean-up to follow. (Using above menu.)

List any resources that are indoors which could be used at your setting. (Using above menu.)

List any special considerations to remember in preparing food in this setting.

S. M. 7 RESOURCES AVAILABLE IN OUTDOOR FOOD PREPARATION SETTINGS

Picnic

Type of Setting:	An outing by a group of people with food. Food is eaten in the open and often is partially prepared outdoors.
Fuel and Equipment for Preparing Food with Heat:	Fireplace ring or grill often available at site. Fuel usually not provided. Brought by the group or collected at the picnic site.
Equipment for Cooking or Cooling Food:	None provided. Cooler and ice must be brought by the group. All equipment must be brought by the group.
Water Supply for Preparation, Drinking and Clean Up:	Pump or source of water usually available at picnic site if the site is carefully selected. Must be transported to the actual point of use from the central location.
Storage of Foods Before and After Serving:	No storage space or equipment which is designed for that purpose is available. Arrangements for storage of food are made by the group.
Equipment for Serving and Eating Food:	None provided. Must be supplied by the group. Tables and benches may be available.
Disposal of Waste and Garbage:	Usually some type of facility is provided for disposal of solid waste.
Special Considerations:	All food and supplies are transported to the area. Extras are often not available at the site or may be costly. A fee may be charged for admission to the area.

S. M. 7 (cont.)

Cookout

Type of Setting:	An outing by a group of people at which a meal or some part of it is cooked and served in the open. May be held in backyard or a location away from the home.
Fuel and Equipment for Preparing Food with Heat:	Fireplace, ring or grill is available or transported to the location of the cookout. Fuel is usually provided by the group. Wood or charcoal.
Equipment for Cooking or Cooling Food:	None is provided at the site. That which is to be used is transported to the site. Indoor equipment and facilities may be used if the cookout is held in the yard. i.e., refrigerator
Water Supply for Preparation, Drinking and Clean Up:	Similar to that available at picnic site unless a backyard is the site, then the usual indoor supply can be used.
Storage of Foods Before and After Serving:	No storage space or equipment which is designed for that purpose is available. Some indoor facilities may be used if site is in yard.
Equipment for Serving and Eating Food:	Seating and serving space and equipment is arranged by the group. Equipment is transported to the area by the group.
Disposal of Waste and Garbage:	Usually some type of facility is provided for disposal of solid waste. Indoor facilities may be used.
Special Considerations:	All food and supplies are transported to the cooking and serving area. Extra food and equipment may be readily available if site is in a yard.

S. M. 7 (cont.)

Camping

Type of Setting:	An outing in which a shelter is erected and food preparation is carried out at the campsite. All food is prepared outdoors. A location away from the home and indoor facilities.
Fuel and Equipment for Preparing Food with Heat:	A fireplace, ring or grill may be available or there may be no special arrangement for firemaking. Fuel is not provided. Fuel can be transported or may be purchased at the site. Frequently there are restrictions on cutting trees for fuel.
Equipment for Cooking or Cooling Food:	None is provided. All must be transported to the site.
Water Supply for Preparation, Drinking and Clean Up:	Pump or source of water may be available near site. Water must be transported to the actual point of use.
Storage of Foods Before and After Serving:	None provided. Bring all equipment required.
Equipment for Serving and Eating Food:	None provided. Bring all equipment required.
Disposal of Waste and Garbage:	Solid waste disposal may be available or the campers may need to bury waste.
Special Considerations:	A fee is usually required at a campsite. Extra food and equipment is not available.

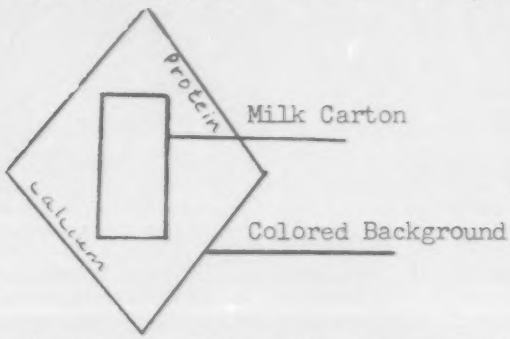
S. M. 8 BULLETIN BOARD - FOOD FOR THE ACTION

Part I. Title may be printed on an arrow shaped piece of construction paper. Pictures of people in action in outdoor food preparation settings are to be used to make the center of the bull's eye. Colored yarns may be used for each of the rings on the bull's eye.

Part II. Prepare an arrow shaped label to indicate the category of nutrient called protein. Attach label so that it points to the appropriate ring. Assemble sources of pictures of foods which are rich in protein, meats, milk, cheese, eggs, fish, dried peas and beans.

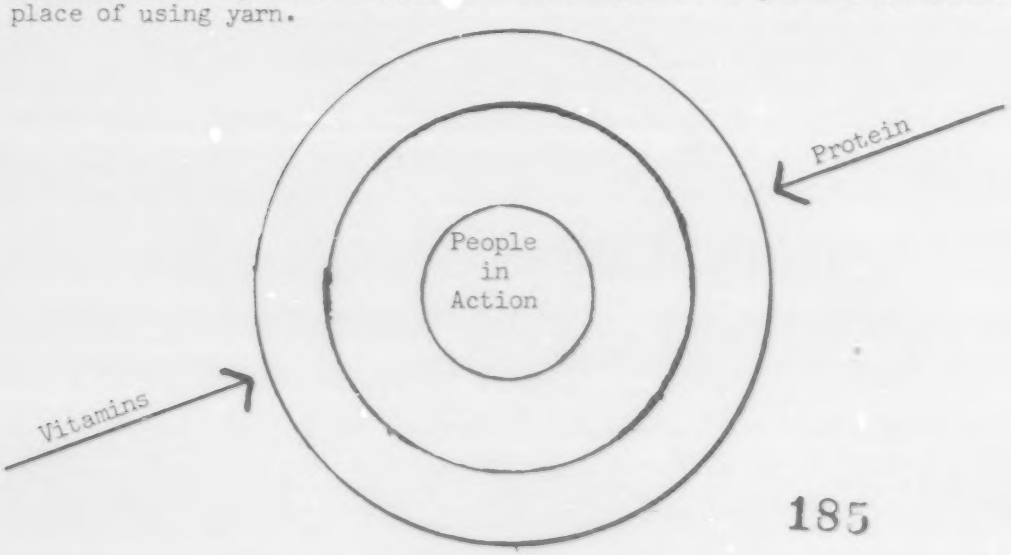
Part III. Complete second ring with yarn. Prepare arrow label with title "Vitamins and Minerals." Assemble pictures of foods which are good sources of various vitamins and minerals. Vegetable, fruits, meats and milk, cereals.

Illustrations and information to be located and presented to class by other class members might be assembled as represented below.

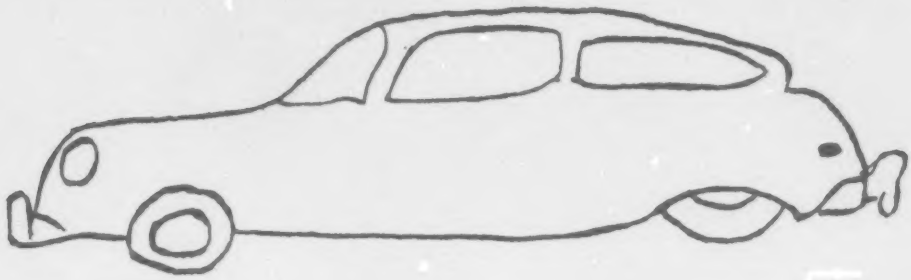


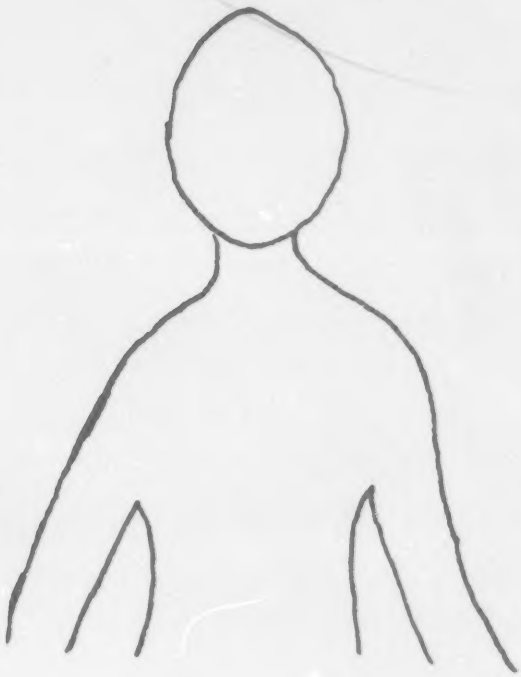
Part IV. Complete the next ring as before. Prepare arrow label for carbohydrates. As students work through the experiences with starch and sugar rich foods, display pictures or labels from foods which are examples of these types of carbohydrates.

Part V and VI. Complete remaining rings of bull's eye target in similar manner. A large area is recommended for the bulletin board. Sheets of brown wrapping paper may be attached to the wall or door to serve as a background if bulletin board space is limited. The rings can be painted on the target in place of using yarn.



S. M. 9 HOW IS A HUMAN BEING LIKE A CAR





S. M. 10 FUNCTIONS OF PROTEIN

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S. M. 11 COOK AND LEARN ABOUT MEAT

How long should the meat cook? How hot should the cooking temperature be? These questions are often asked by individuals as they begin to prepare meat.

This experiment is planned to help you understand the effects of time and temperature on the taste, appearance, and yield of cooked meat.

Read the directions listed below BEFORE beginning the experiment.

1. Shape 3 premeasured 3 ounce hamburger balls into patties ½" thick.

Procedure A Place 2 of the 3 ounce patties on a cold broiler pan.
Adjust the oven rack so that the surface of the meat is approximately 4 to 5 inches from the source of heat.
Broil one pattie 3 minutes on one side, season with salt, turn and broil 3 minutes longer.
Remove from broiler immediately. Weigh on food scale and record weight.

Procedure B Continue to broil the second pattie an additional 2 minutes longer on the first side, season with salt, turn and broil total of 4 minutes.
Remove from broiler immediately. Weigh on food scale and record weight.

Procedure C Adjust rack so that surface of meat will be 3 inches from the source of the heat.
Place pattie on broiler pan.
Broil this 3 minutes on one side, side, season with salt, turn and broil for 3 minutes on the other side.
Remove from broiler immediately. Weigh on food scale and record weight.

After weighing each pattie, sample the meat and complete the remainder of the chart.

Under the column marked appearance, list those words which describe the appearance of the cooked hamburger.

Cut the pattie with a fork. Does it cut easily or hard? Taste a piece of the meat. Does it chew easily? List words which describe the tenderness of the meat in the tenderness/texture column.

2. Separate 4 slices of bacon and cook 2 slices each according to the following procedures:

Procedure A Place 2 slices of bacon in a cold frying pan. Turn heat to medium low setting. Cook, turning frequently, until slices are light golden brown, approximately 5 - 7 minutes. Remove from pan and drain on paper towel. Measure drippings. Describe appearance, taste and texture of meat.

Procedure B Place 2 slices of bacon in a cold frying pan. Turn heat to high setting. Cook turning frequently until bacon is done, approximately 5 - 7 minutes. Remove from pan and drain on paper towel. Measure drippings. Describe appearance, taste and texture of meat.

S. M. 11 COOK AND LEARN ABOUT MEAT: OBSERVATION SHEETS

(Note: adapt form for both experiments)

Procedure A	Uncooked Weight	Cooked Weight	Appearance	Tenderness/ Texture
Broiled 4-5 inches from heat. Total of 6 min.	3 oz.			
Procedure B				
Broil 4-5 inches from heat. Total of 10 min.	3 oz.			
Procedure C				
Broil 3 inches from heat. Total of 6 min.				

S. M. 12 OUTDOOR COOKING EQUIPMENT

Fuel:	Wood, fire.
Equipment:	Ring or grill.
Cost:	None or minimum.
Availability:	Kindling such as paper or small twigs or slivers of wood may be available at location. Pre-cut wood may also be available. Some areas restrict wood cutting or gathering at location and wood must be transported.
Procedures for Use:	Select woods which produce a good bed of coals (oak, ash, maple, hickory). Wood must be dry. Clear ground area where fire will be made. If possible, ring with rocks. Build fire from kindling up. Do not pack kindling. Leave air space at bottom to permit heat and flame to pass up and ignite logs.
Special Considerations:	Camp fire cooking is done over a bed of coals which requires that the fire be started well in advance of the time for cooking. Camp fire cooking requires fair weather unless a shelter is used to keep rain from the fire. Fires need constant attention to safeguard against flying sparks, flare-up or dying out of fire. To put fire out drown with water and spread coals apart and drown again.
Testing for Temperature of Fire:	Hold the hand above the heat palm down at the level at which cooking will be done. Be careful not to burn hand. If the hand can be held at that position for 3 seconds or less = 400 degrees 3 to 4 seconds = 350 degrees 4 to 5 seconds = 300 degrees. Use the one thousand one method for counting seconds.

S. M. 12 (cont.)

Fuel:	Charcoal.
Equipment:	Ring or grill.
Cost:	Minimum.
Availability:	Can be purchased in lump or briquet form. Briquets produce uniform heat and yield long lasting coals and burn without sparking. Lump is usually cheaper and gives off wood aroma.
Procedures for Use:	Start with kindling base or with liquid starter. (NOT GASOLINE OR KEROSENE.) Use only enough fuel to make one layer of charcoal a little larger than the area needed for cooking.
Special Considerations:	Time is required to light the fire and have the coals burn to a point right for cooking. When charcoal is gray or white on the outside and glowing within, they are ready for use. To add fuel, put briquets at the outer edge - not on top of those already burning. For low heat, space coals so they do not touch in a checkerboard pattern. For more heat, flick the white ash from the coals. To control flareup, sprinkle with water from a bottle.

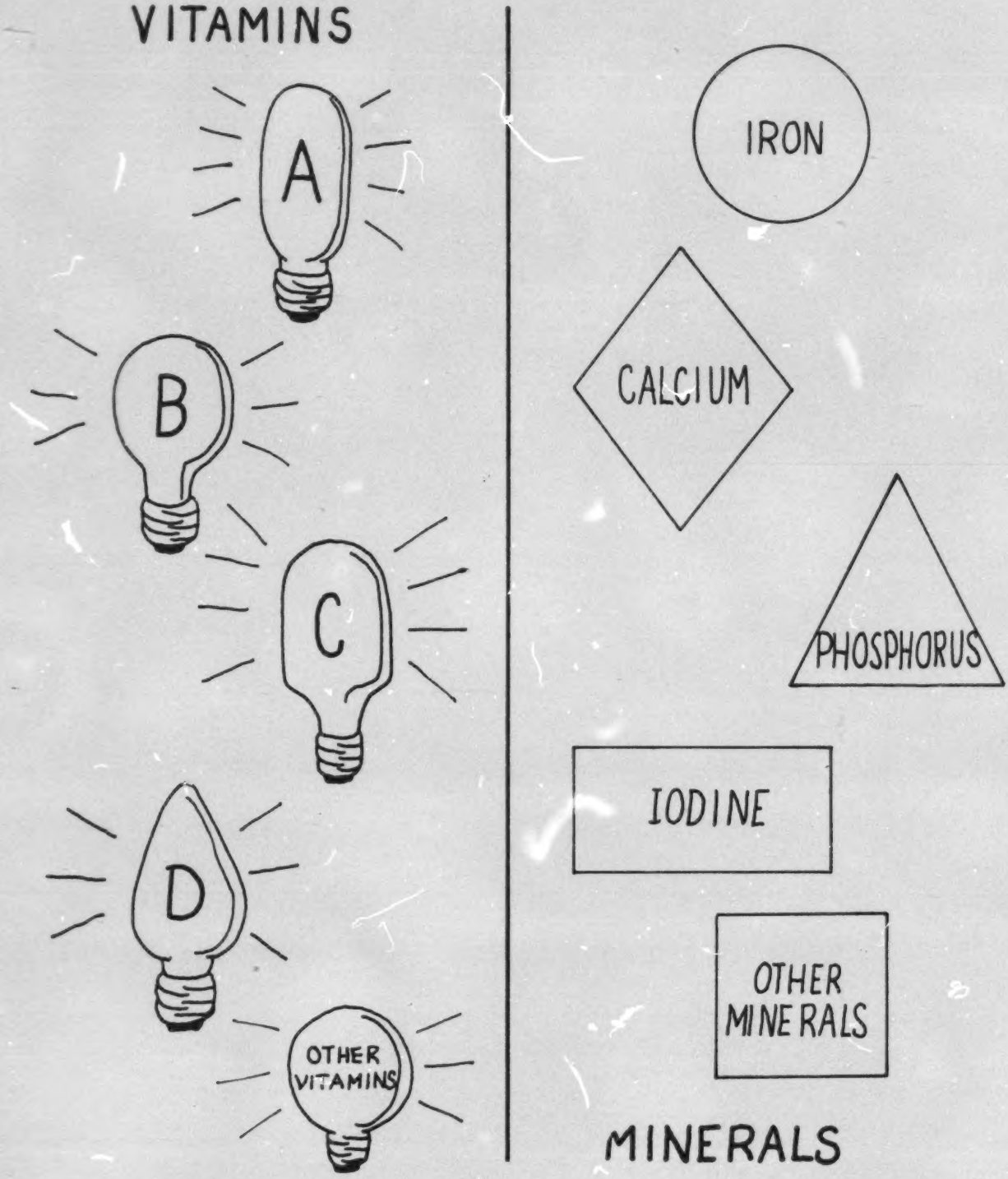
S. M. 12 (cont.)

Fuel:	Bottled propane gas.
Equipment:	Camp stove.
Cost:	Fairly expensive, $1.75/cylinder.
Availability:	Easily purchased in throwaway containers with gas under pressure.
Procedures for Use:	Gives fine, hot, blue flame. Easy to control with shut off valve. Efficient and requires no pumping or generator charge. Pot and pan bottoms do not get black with use.
Special Considerations:	Do not throw cylinders in the fire. Bury them or put in garbage container. Disposable containers will not always interchange with every stove. Susceptible to temperature variations, do not function well if weather is cold.

S. M. 12 (cont.)

Fuel:	White gasoline.
Equipment:	Camp stove.
Cost:	Fairly inexpensive, uses little fuel.
Availability:	Hard to find in some areas.
Procedures for Use:	Extremely flammable. Cylinder uses hand pump to force fuel into burner units.
Special Considerations:	Requires care in use. May flare up at first. Shut off valve to let gas burn out.

S. M. 13 FUNCTIONS OF VITAMINS AND MINERALS



Sliced Oranges
Pancakes
Syrup Butter
Bacon
Coffee Milk

Grilled Cheese Sandwiches
Potato Chips
Celery and Carrot Sticks
Chocolate Chip Bars
Milk Coffee

Bacon and Frankfurter Kabobs
Toasted Buttered Buns
Foil Cooked Vegetable
(corn on cob, carrots)
Apple or Pear
Cocoa

Meat and Vegetables in Foil
Campfire Biscuits Butter
Cabbage Apple Slaw
Blueberry Cobbler
Fruit Punch Milk

S. M. 15 COOKING WITH FOIL

For many outdoor cooks, aluminum foil is an important part of the equipment they use. In fact, only the knife out ranks it in importance. Foil is a marvelous convenience.

Properly wrapped meats, vegetables, fruits and combinations of these foods are prepared by sealing them in foil. The flavor which results is very good and pan washing or grill cleaning is eliminated.

Heavy duty foil is generally recommended for most outdoor cookery. If light weight foil is used, two layers is suggested to add strength and prevent puncturing during cooking.

The dull side of the foil conducts heat faster and so foil cookery seems to work best if the dull side is closest to the source of heat. (outside) In cooking food out-of-doors, food in foil is frequently turned over to keep one side from burning. One important point in cooking foods in foil packages is to seal the packages tightly to retain the juices and steam and to keep the food free of ashes and dirt. A good sized overlap will insure that the wrapped package is tight. A food package could be wrapped a second time, so that when the outer foil covering is removed, the inner is clean and can be used as a plate.

HOW TIGHTLY SHOULD A FOIL PACKAGE BE WRAPPED? HOW MUCH AIR SPACE SHOULD BE LEFT?

When cooking meats and fish, very little air space should be left in the package if an evenly browned food is desired. In cooking vegetables or other foods which require moisture for cooking, more air space is needed.

Frozen foods can be cooked in foil, add a tablespoon of water, butter and seasonings for best results. Frozen foods will require a longer cooking time than those which are thawed.

The average lengths of time suggested for cooking foods in foil over coals are as follows:

Beef, hamburger	10-12 min	Carrots, diced or sticks	15-20 min
Beef, cut in 1 inch cubes	20-30 min	Corn, whole ear	8-12 min
Frankfurters	5-10 min	Potatoes, whole	45-60 min
Pork Chops	30-45 min	Potatoes, sliced	10-20 min
Fish Fillets	10-20 min	Apple, whole	20-35 min
Fish, whole	12-25 min	Biscuits (leave space to rise)	6-12 min
Chicken or game birds cut in 1 inch cubes	20-30 min		

To open the foil packet, simply cut off the folded sides or snip an X on the top of the packet and fold the ends back to make a cook and serve container.

Food can be fried on a foil surface. Lay a doubled sheet of heavy duty foil over the grill surface. Place food directly on the foil. The coals may be arranged so that one end of the foil becomes quite hot while the other end is less hot. Proceed as in pan frying.

S. M. 15 COOKING WITH FOIL

Other Uses for Foil in Outdoor Food Preparation

1. Make a bread board by laying a strip of foil on any flat surface. Use a round bottle or jar for a rolling pin.

2. Small items, such as silverware, can be kept clean and together without rattling by packing them in foil. The same foil may be used several times.

3. A double thickness of heavy duty foil folded up 1½ inches on the corners and sides will make a handy pan to catch food drippings.

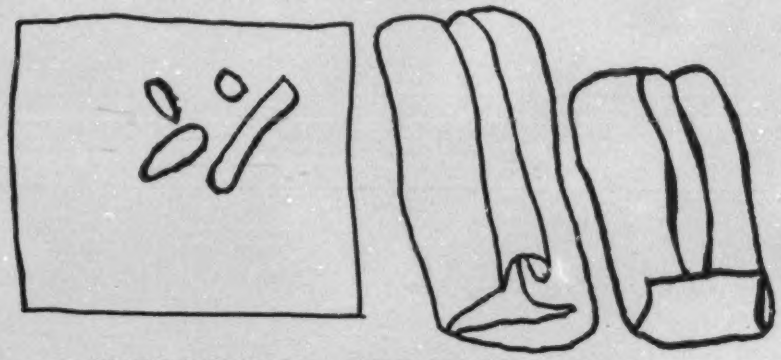
4. Sugar, flour and salt can be wrapped in foil to prevent caking from dampness.

5. Cooked foods can be wrapped in foil to keep them warm.

6. Foil can be draped around an open grill to make a covered cooker.

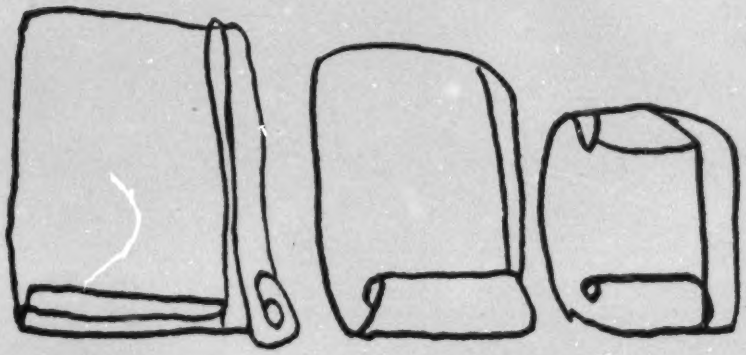
7. Foods can be wrapped in foil to keep them warm or for storage in a cooler.

S. M. 16 WRAPS TO USE IN PREPARING FOODS IN FOIL



1. Bring two opposite sides together over center of item to be wrapped.
2. Fold over together 2-3 times until final fold is flat on top of food.
3. Seal ends with the same kind of fold.

DRUGSTORE FOLD - SEALED AT THE TOP

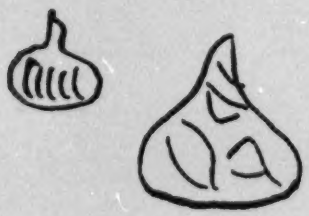


1. Bring top and bottom edges together at side of item.
2. Fold over together 2-3 times until final fold is flat against the side.
3. Seal ends with the same kind of fold.

DRUGSTORE FOLD - SEALED AT THE SIDE
(Food cooks more evenly on top and bottom if fold is at the side)

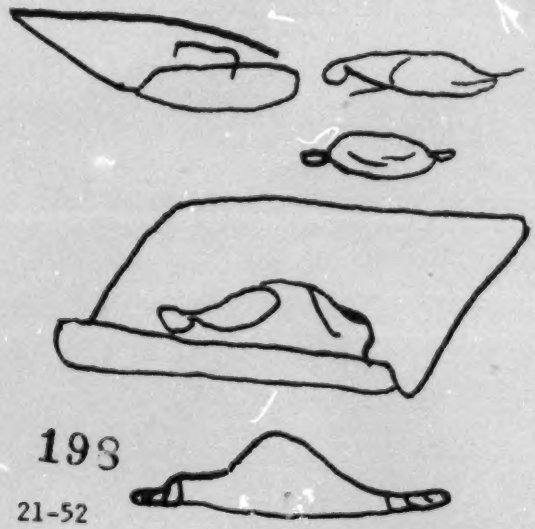
ROUND WRAPS

1. Draw side up, twist top.



OVAL WRAPS

(ends serve as handles)



S. M. 17 COOKING WITH SKEWERS

Cooking fruits and vegetables on skewers requires a slow fire and careful attention. Most fruits cook quickly, but the vegetables, in many cases, should be parboiled first. The pieces are strung on skewers and are usually basted during the cooking.

Fruits

Unpeeled apple quarters. Roll in butter and sprinkle with sugar.

Peeled apple. Cut in cubes, wrap in bacon. Broil until the bacon is crisp.

Canned Apricot or Peach Halves. Dip or coat with butter and broil until golden brown.

Peeled Banana. Cut in four halves, dip in melted butter, and brown. Roll in chopped salted nuts.

Pineapple Chunks. 1) Alternate with green pepper squares and brush with butter. Cook until lightly browned, but with the pepper still crisp. 2) Alternate with bacon; cook until bacon is crisp.

S. M. 18 STUDY GUIDE FOR PREPARATION OF CARBOHYDRATE FOODS (STARCHES)

Complete the guide with the appropriate information.

GROUP AND RECIPE	EQUIPMENT REQUIRED	TIME REQUIRED FOR PREPARATION	TIME REQUIRED FOR CLEAN UP OF PREPARATION EQUIPMENT
Group I			
Group II			
Group III			
Group IV			
Group V			
Group VI			

S. M. 19 STANDARDIZED RECIPES

The standarized recipe is a tool to be used in the preparation of foods which have eye and taste appeal.

Experimentation and testing have been used to develop standardized recipes.

As recipes were developed workers who did the testing agreed to use particular kinds of measuring equipment and particular ways of measuring or rules.

Through testing, the proportions of ingredients have been adjusted and methods of combining ingredients were developed to insure that the same kinds of qualities would be produced in the product each time the recipe was correctly used.

The standardized recipe provides information related to the following:

kind and amount of ingredients by measure
step by step instructions for combining ingredients
size of utensil for baking
temperature and length of time for cooking, baking, cooling or freezing
size and number of portions which each recipe will yield.

Food preparation like many other specialized kinds of work has a language of its own and equipment which is designed to do special tasks.

Workers who are successful in the preparation of food understand the language and know how to use the equipment.

The standardized measuring equipment used in preparation of family and individual sized recipes include:

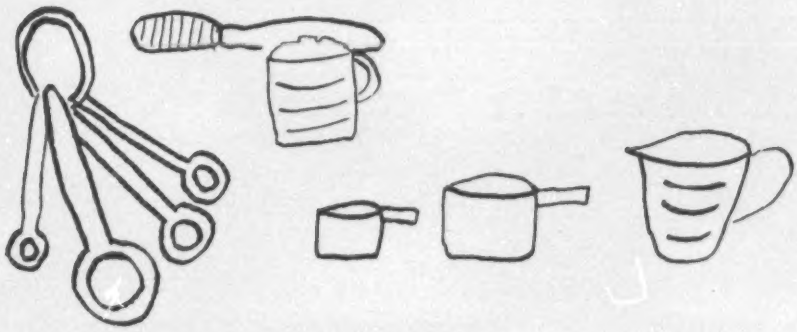
graduated measuring cups for dry ingredients
measuring cups for liquid ingredients
measuring spoon for measuring all ingredients of less than $\frac{1}{4}$ cup.

Symbols or abbreviations used in recipes give the food preparer valuable information about the measuring tools to be used and the quantity of ingredient to be measured.

Symbols used frequently in the preparation of family and individual sized recipes include:

C = cup
T. or Tbsp = Tablespoon
t. or tsp. = teaspoon

S. M. 20 MEASURING ACCURATELY: TOOLS AND TECHNIQUES



Cooking is a science as well as an art. Before you can become a good cook you will need to know how to measure accurately. Measurements must be level and exact or results will vary. That is why it is very important to MEASURE ACCURATELY.

There are two ways to measure for accuaracy:

1. By weighing. This method is used when large quantities of food are prepared in bakeries, hospitals and some restaurants.

2. By using the standard measuring cups and spoons. This is the method we will use in class and at home as it is more practical.

BE SURE YOU HAVE THE CORRECT MEASURING TOOL

Measuring cups are made of aluminum, glass, or plastic. A standard measuring cup is an accurate $\frac{1}{2}$ pint measure, and it is equivalent to 16 tablespoons.

A Liquid Measuring Cup has a lip above the 1 cup line. This cup is used to measure liquids. Read the measure at eye level. It is marked on one side: 1 cup, 3/4 cup, $\frac{1}{2}$ cup and $\frac{1}{4}$ cup. It is marked on the other side: 1 cup, 2/3 cup and 1/3 cup.

A Dry Measuring Cup has no rim. The 1 cup line is even with the top. Dry measuring cups come in four measures, 1 cup, $\frac{1}{2}$ cup, $\frac{1}{4}$ cup and 1/3 cup. They are used for dry ingredients and shortening.

A Set of Measuring Spoons has 4 different spoons. 1 tablespoon, 1 teaspoon, $\frac{1}{2}$ teaspoon and $\frac{1}{4}$ teaspoon. These spoons are used for measuring less than $\frac{1}{4}$ cup of any ingredient.

3 teaspoons = 1 tablespoon	2 pints = 1 quart
16 tablespoons = 1 cup	16 ounces = 1 pound
2 cups = 1 pint	1 pound = 2 cups butter

A spatula is a straight-edged, knifelike utensil used for leveling of measuring cups and spoons.

S. M. 22 BEVERAGE COMPARISON CHART

KIND	UNIT COST	SERVING SIZE	NUMBER SERVINGS	COST/ SERVING	Protein	Vitamin A	Vitamin B	Vitamin C	Vitamin D	Calcium	Phosphorus	Iron	Carbohydrate	Fat
Whole Milk														
Nonfat Dry Milk														
Fruit Juice Canned														
Fruit Juice Frozen														
Fruit Drink														

S. M. 25 ON YOUR MARK

GROUP MEMBERS_____

Plan 3 menu's which could be prepared and served in the outdoor setting assigned to the group.

OUTDOOR SETTING_____

MENU I

MENU II

MENU III

S. M. 26 GET READY

GROUP MEMBERS _____

OUTDOOR SETTING: _____

In the space below WRITE the menu which the group has choosen to prepare.

List the foods which will be prepared outdoors and attach recipes.

List the equipment and supplies that will be required to prepared these foods.

List the foods which will be prepared indoors and transported to the outdoor setting. Attach recipes.

List the equipment and supplies that will be required to transport these foods to the outdoor setting.

S. M. 26 GET READY (cont.)

Describe the manner in which foods will be served.

List equipment and supplies that will be required to serve and eat the foods.

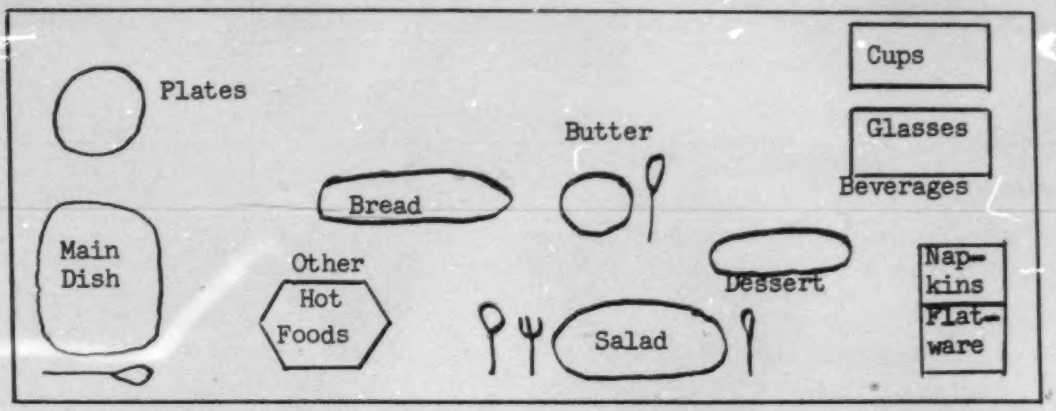
List the clean up tasks which are to be done in each setting.

List the equipment and supplies that will be required to carry out the out-of- doors clean up activity.

Indoors

Outdoors

S. M. 27 FOR CONVENIENCE: A BUFFET TABLE



1. Place the main dish near the plates.
2. Place other hot food next to the main dish.
3. Cold salads and breads can be placed next in order.
4. Dessert may be placed after salad but before silverware, napkins etc.
5. Silverware and beverages are placed last. Persons do not have to balance or hold onto these items when picking up other foods.
6. Both sides of a buffet table can be utilized if there are a large number of persons to be served. Duplicates of everything are to be placed on each side of the table.

S. M. 28 FOODS: EYE AND TASTE APPEAL

Chili	Hamburgers with Cheese
Tomato Wedges	Carrot Sticks
Cornbread	Potato Salad
Purple Plums	Ice Cream
	Milk

S. M. 28 GET SET

Outdoor Setting_____ Group Members_____

_____ _____

_____ _____

_____

_____

_____

Complete the following Chart:

WHAT	WHEN	WHO	WHERE
FOOD PREPARATION TASKS			
TRANSPORTATION TASKS			
SERVING TASKS			
CLEANUP TASKS			

S. M. 29 "GO"

The "GO" form is a blank sheet of paper on which the teacher records directions, reminders, comments, and questions which the student groups would find helpful to consider before they begin the meal preparation.

S. M. 30 SELF-EVALUATION OF OUTDOOR FOOD PREPARATION EXPERIENCE

OUTDOOR SETTING_____ GROUP MEMBERS_____

MENU

TYPE OF SERVICE_____

In a blank space to the right of the statement or phrase, describe how the group would rate the particular part of the ourdoor food preparation experience. What changes might be made?

Food Selection and Preparation:

Meal provided some of each of the basic nutrients.

Meal was attractive to look at. Variety in color, form.

Meal was tasty: variety in flavor, texture and temperature of foods.

Foods were ready to serve on time.

Food Service:

Arranged for convenience.

Arranged for comfort and enjoyment.

S. M. 30 SELF-EVALUATION OF OUTDOOR FOOD PREPARATION EXPERIENCE (cont.)

Management:

Group worked in a cooperative manner.

Individuals did their assigned tasks.

Equipment and supplies required were available.

Clean Up:

All equipment that had been used was cleaned.

All spaces left in order and cleaned.

Equipment returned and stored in appropriate place.

Write down as many words as you can that describe your feelings toward the outdoor cooking experience. Each individual can contribute their own ideas. The total group need not agree before a word is listed.

S. M. 31 REFERENCES

Books:

Bates, Joseph D. Jr. The Outdoor Cook's Bible. Garden City, New York: Doubleday and Company, 1973.

Better Homes and Gardens. Family Camping. DesMoines, Iowa: Meredith Publishing Company, 1961.

New Outdoor Cookbook Barbeques. New York: Golden Press, 1967.

Sunset Barbeque Cookbook. Menlo, California: Lane Publishing Company, 1957.

Thomas, Dian. Roughing It Easy. Provo, Utah: Brigham Young University Press, 1974.

Periodicals:

"Equipment: Gearing up fo Camping - A Favorite Family Pastime." Forecast for Home Economics. May, 1973.

"Planning Ahead for Outdoor Dining." Forecast for Home Economics. April, 1975.

"Slimming Tricks to Play on Picnics." Co-ed Magazine. May/June, 1973.

Visuals:

Sanitation: Rules Make Sense. (8 min., color)
Sanitation: Why All the Fuss? (8 min., color) Minnesota Department of Health, Section of Public Health Education, 717 Delaware Street S.E., Minneapolis, Minnesota.

How to Cook Meat by Moist Heat. (50 slides, color)
Selection and Preparation of Meats Requiring Less than One Hour. (19 slides) Extension Visual Education Specialist, Agricultural Extension Service, Institute of Agriculture, St. Paul, Minnesota.